

SALTICIDAE OF THE PACIFIC ISLANDS. II. DISTRIBUTION OF NINE GENERA, WITH DESCRIPTIONS OF ELEVEN NEW SPECIES

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ABSTRACT. Pacific salticids of the genera *Ascyltus*, *Bavia*, *Cosmophasis*, *Flacillula*, *Frigga*, *Ligurra*, *Plexippus*, *Thorelliola* and *Trite* are discussed. Eleven new species are described: *Ascyltus similis*, *Ascyltus rhizophora*, *Bavia fedor*, *Bavia sorsorol*, *Cosmophasis arborea*, *Cosmophasis lami*, *Cosmophasis muralis*, *Flacillula nitens*, *Ligurra opelli*, *Thorelliola dumicola* and *Trite ponapensis*. Illustrations and distribution records are presented for the new species. Drawings of four additional species of *Trite* are included.

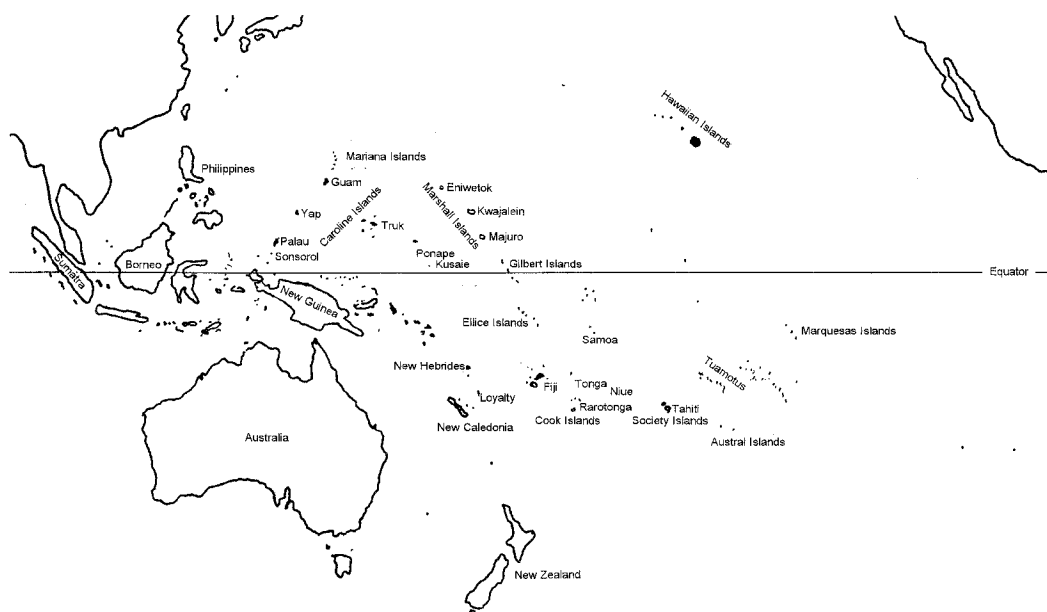
This is the second in a series of papers on jumping spiders of the Pacific Islands (see Berry, Beatty & Prószyński 1996). In this paper we treat 24 species in the genera *Ascyltus*, *Bavia*, *Cosmophasis*, *Flacillula*, *Frigga*, *Ligurra*, *Plexippus*, *Thorelliola* and *Trite*. Eleven new species are described from Fiji, Samoa and the Caroline Islands.

Several of the species included here have extensive distributions and have been reported many times before from the region: *Ascyltus pterygodes* (L. Koch 1865), *Bavia aericeps* Simon 1877, *Bavia sexpunctata* (Doleschall 1859), *Frigga crocuta* (Taczanowski 1878) (mostly under the name *Sandalodes calvus* Simon 1902), *Plexippus paykullii* (Audouin 1825) and *Thorelliola ensifera* (Thorell 1877). At least three of these familiar species, sometimes more, can be found on most of the islands in the Pacific.

Except for Wanless's (1978) revision of the genus *Sobasina*, very little specifically on Pacific salticids has been published. Zabka (1987–1995) published a series of papers under the general title "Salticidae of Oriental, Australian and Pacific Regions". The emphasis of these publications is strongly on the fau-

nas of mainland Australia, Asia and the large continental islands, and little that is applicable to Micronesia and Polynesia is included. Berland (1934a) listed 40 salticid species from Polynesia, and in later papers (1934b, 1938, 1942) which included other Pacific areas, he added 15 more. Marples (1955a, 1955b, 1957, 1964) described six new species from Fiji, Tonga, Samoa and the Cook Islands. The New Guinea fauna described by Chrysanthus (1968) overlaps the fauna of the smaller oceanic islands only in the case of cosmotropical or widespread Pacific species (e.g., *Bavia aericeps* Simon 1877, *Menemerus bivittatus* (Dufour 1831), and *Plexippus paykullii* (Aud. 1825)).

The collections on which this paper is based were mostly made by J.W. Berry, E.R. Berry, and J.A. Beatty (indicated as JWB, ERB, and JAB in the text) in a series of collecting trips: Marshall Islands (1968, three months; 1969, three months); Palau (1973, six months); Guam, Yap, Truk, Ponape, Taiwan (1973, 1–2 weeks each); Yap (1980, six months); Marquesas, Tuamotu, Society, Cook and Fiji Islands (1987, six months total); and Hawaii (1995, one month). Specimens borrowed from



Map 1.—Major island groups in the Pacific Ocean.

the Bishop Museum (BPBM) and the American Museum of Natural History (AMNH) were also examined and are occasionally referred to in the text.

As in our previous paper, we have placed new species in previously described genera to which they are most similar, recognizing that they do not always match perfectly. For example, the species of *Trite* illustrated (Figs. 91–104) are genitally heterogeneous, though similar in habitus. A revision of the genus may very well dismember it and place the new species elsewhere.

Species limits within genera are, again, not narrowly defined. Small differences between Samoan and Fijian populations of *Ascyrtus similis* new species are conceived as intraspecific rather than interspecific variation (Figs. 12–16, 21–28). We feel that, before additional species are described, this variation should be investigated in more specimens than we have available.

None of the genera included here has been reported solely from the Pacific islands. *Ascyrtus*, *Frigga* and *Trite* are known from the Pacific islands and from Australia (*Frigga* from South America, also). *Flacillula*, *Ligurra* and *Thorelliola* occur in the Pacific and in Asia (including Sri Lanka); while *Bavia* and *Cosmophasis* are found in the Pacific, Asia and Australia. *Plexippus* is cosmopolitan.

The generic diagnoses are intended to distinguish only among salticid genera reported from the Pacific Islands (Micronesia and Polynesia), excluding the large islands near Asia and Australia, the sub-Antarctic and the eastern Pacific Islands. In the descriptions the genera are categorized by size as follows: small, 2–4 mm total length; medium, >4–8 mm; large, >8–16 mm; and very large, over 16 mm. The anterior, middle and posterior eye rows are referred to, respectively, as eyes I, eyes II and eyes III. Illustrations of male palpi are of the left palp unless otherwise stated.

The holotypes and other specimens of all new species will be deposited in the Bishop Museum (BPBM) (State Museum of Hawaii) in Honolulu. All adult specimens are paratypes unless specifically excluded in the text; juveniles are not paratypes.

Genus *Ascyrtus* Karsch 1878

Discussion.—Seven species are currently listed in this genus (Žabka 1988; Prószyński 1990). All of these were described in the 19th or early 20th century, and most are poorly known and unrevised. Specimens mentioned in publications have almost all been identified as *A. pterygodes*. Species limits are not clear and the actual number of distinct species is unknown. Palpal structures are rather similar in all species.

Diagnosis.—Distinguishable from numerous other fissidentate Pacific genera especially by the antero-lateral “cheek” areas of the carapace, which are covered by iridescent scales. These areas are often broadened as well. They are usually detectable even in half-grown juveniles. Other diagnostic characters include the absence of lateral spines on first metatarsi, first coxae separated by more than the diameter of one of them, eyes in normal three rows instead of four (the second row midway between the first and third), pedicel concealed by abdomen in dorsal view, and cheliceral promargin in males with a large multicusped tooth.

Descriptive notes.—Medium to very large-sized fissidentate (bicuspid) salticids. Retrolateral surface of male chelicera with stridulatory grooves. Prolateral margin in males with a large multicusp tooth (4–6 cusps), in females a row of separate teeth. Antero-lateral portion of carapace expanded into broad, seta-fringed cheeks in males and some females. Male palps long and slender, especially the tibia; cymbium small, little wider than other palpal segments. Legs long and slender. Cephalothorax broad, flattened, squarish in appearance, usually with prominent cheeks laterally, fringed by setae and covered by reflective scales. Cheeks more pronounced in larger specimens, less so in smaller ones. Abdomen elongate, narrowing posteriorly, dorsal surface in males with a scutum, usually with indistinct edges; no scutum in females. Dorsum with two broad brown bands separated by a lighter median area; covered with adpressed colorless or brown scales. Face very low, reduced almost to the diameter of AME, but broad, clypeus very low. Chelicerae in males (and in female *A. pterygodes*) very large, diverging, elongate and broad, extended diagonally forward, covered with short setae. There is a bicuspid retrolateral tooth at midlength; a ridge on the retrolateral surface of the paturon ends in a tooth near the base of the fang. Prolateral tooth in some species preceded by an additional conical tooth; fang long. In females chelicerae usually of normal size, vertical, slightly bulging basally. Legs long and brown; tibiae I and II normally with 3–3 ventral spines, plus 2 to 3 prolateral and one retrolateral. Pedipalps thin and long.

Ascyltus pterygodes (L. Koch 1865)

Figs. 1, 4, 7, 9, 10, 11; Map 2

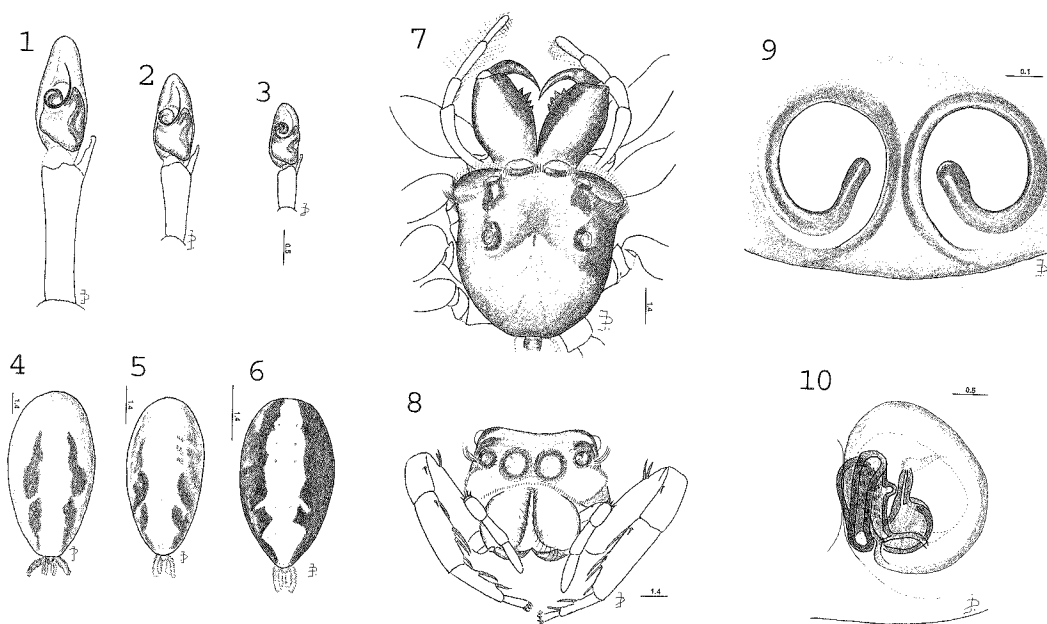
Hyllus pterygodes L. Koch 1865

Ascyltus pterygodes (L. Koch): Karsch 1878

Diagnosis.—Large to very large specimens; chelicerae large and divergent in both sexes. *Male*: Tibia of palp clearly longer than cymbium, fang furrow with transverse ridges, no diagonal ridge on anterior surface of chelicera. *Female*: Internal ducts of epigynum long, but not extending forward beyond “windows” (Figs. 10, 11), cheeks well developed.

Description.—*Male*: ($n = 5$). Total length 13–19 ($\bar{x} = 15.4$), length of carapace 5.5–7.0 ($\bar{x} = 6.20$), maximum carapace width 5.1–6.9 ($\bar{x} = 5.94$), eye field length 2.3–3.1 ($\bar{x} = 2.77$), eye row I width 3.1–4.0 ($\bar{x} = 3.58$). Cephalothorax brown, with eye field and ventral margins dark brown; cheeks very large and prominent. Abdomen brown with darker marginal streaks, sides brownish-grey, spinnerets dark greyish-brown. Frontal aspect: eyes I surrounded dorsally by orange setae, ventrally by white, chelicerae particularly broad, blackish brown, legs brown anteriorly. One bicuspid retrolateral cheliceral tooth plus a conical distal one offset somewhat from the fang furrow, one large five-cusped prolateral cheliceral tooth. Ventral aspect: mouth parts brown, endites with antero-external edges expanded triangularly, sternum light brown, medially lighter. *Legs*: Leg formula 1-2-4-3, patella-tibia III equal to IV. Patella-tibia I length 6.4–9.5 ($\bar{x} = 7.84$). Coxae brown anteriorly and yellow posteriorly; abdomen ventrally greyish with brownish scales. *Palp*: With tibia distinctly longer than the cymbium (see Fig. 1).

Female: ($n = 5$). Total length 16–20 mm ($\bar{x} = 17.1$), length of carapace 5.5–7.0 ($\bar{x} = 5.98$), maximum carapace width 5.1–6.5 ($\bar{x} = 5.64$), eye field length 2.7–3.2 ($\bar{x} = 2.81$), eye row I width 3.5–4.0 ($\bar{x} = 3.69$). Cephalothorax brown like male, with eye field and ventral margins dark brown; cheeks very large and prominent, without vertical horn-like tufts of stiff black bristles near eyes II; chelicerae protruding forward, somewhat diverging, long (about $\frac{1}{2}$ length of cephalothorax) and broad. Abdomen oval, swollen medially and narrowing posteriorly, but without scutum, covered densely with brownish scales on white back-



Figures 1–10.—Comparison of species of *Ascyltus*. 1–3. Ventral view of left palps all drawn to the same scale. 1, *A. pterygodes*; 2, *Ascyltus similis* new species; 3, *Ascyltus divinus*. 4–6. Abdominal patterns of females of *Ascyltus*, (drawn to different scales); 4, *A. pterygodes*; 5, *A. similis*; 6, *A. rhizophora*; 7, Dorsal view of cephalothorax of female *Ascyltus pterygodes*; 8, Frontal view of *A. rhizophora* new species; 9, *Ascyltus pterygodes* (L. Koch) epigynum; 10, Internal structure of *A. pterygodes* epigynum —single spermatheca and ducts.

ground, with two broad dark brown streaks of scales along posterior $\frac{2}{3}$ of abdomen, divided by a narrow gap into two blocks; sides with mosaic of fine, dense brownish and whitish streaks of scales. Spinnerets brownish. Frontal aspect: much like male, eyes I surrounded dorsally and ventrally by orange setae, chelicerae blackish-brown covered with short sparse whitish setae. One bicuspid retrolateral cheliceral tooth, six prolateral cheliceral teeth. Ventral aspect: as in male, except endites with antero-external edges rounded, sternum light brown, medially lighter; coxae brownish yellow; abdomen ventrally very light brownish. *Legs*: Leg formula 4-3-1-2, patella-tibia III equal to IV. Patella-tibia I length 5.1–7.8 (\bar{x} = 6.14). Legs light brown, the first pair darker. *Epigynum*: With septum narrow at mid-length, internal duct with double loop about half as long as diameter of “window” or slightly more (see Figs. 9, 10).

Material examined.—**FIJI**: *Viti Levu*, Nandarivatu, in house, 1♂, 11 April 1987 (JAB); Nandarivatu, along stream near swimming pool, 1♂, 12 April 1987 (JWB); Nandarivatu, on shrub at swim-

ming pool, 1♂, 12 April 1987 (JAB); Nandarivatu, at swimming pool, 1♀, 14 April 1987 (JAB); Nandarivatu, in house, 1♂, 17 April 1987 (JAB). **HAWAII**: *Hawaii County*, Captain Cook, on bush in nursery, 1♂, 15 January 1988; Manuka State Park, mesic forest, elev. 1770 ft., 2♀ 13mm, 11 February 1995; Kalopa State Park, shaking banana leaves, elev. 2500 ft., 1♂ 3♀ 8mm; Waipio Valley Lookout, on clay bank, 1♂, 14 February 1995; Lapahoehoe, elev. 500 ft., shaking banana leaves, 1♂ 12mm, 20 February 1995; Lapahoehoe, elev., 1100 ft., along gulch, 1♂ 11mm, 20 February 1995; Isaac Hale Beach Park, *Pandanus* litter, 1♀ 2mm, 23 February 1995. (All Hawaiian specimens collected by J.W. & E.R. Berry.)

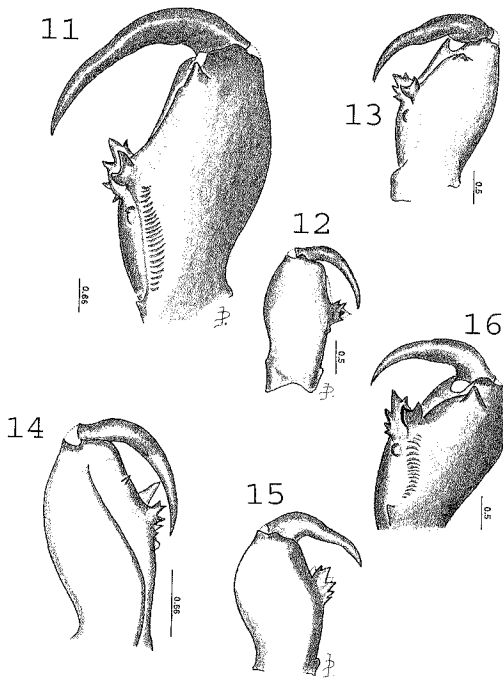
Distribution.—Reported from Hawaii, Samoa, Fiji, Tonga, Niue, the Ellice, Tokelau, New Hebrides, Loyalty and Society Islands.

Ascyltus divinus Karsch 1878

Figs. 3, 14, 17–20; Map 2

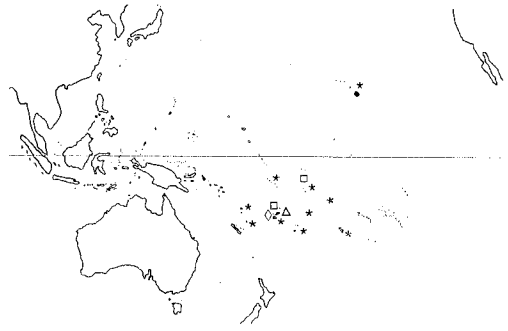
Ascyltus simplex Karsch 1878: synonymized by Żabka (1988)

Discussion.—Żabka’s (1988) drawing of the male chelicerae shows a simple prolateral tooth, not the multicusp tooth typical of the



Figures 11-16.—Comparison of chelicerae in males of several *Ascyltus* species. 11, Ventral view in *Ascyltus pterygodes* from Fiji; 12, Dorsal view in *Ascyltus similis* new species from Samoa; 13, Ventral view in *Ascyltus similis* new species from Samoa; 14, *Ascyltus divinus* from Fiji [cf. Zabka 1988: 424-427, fig. 8]; 15, Dorsal view of chelicera of *Ascyltus similis* new species from Fiji; 16, Ventral view of chelicera in *A. similis* new species from Fiji.

genus. However, our specimens show a row of small cusps on one edge of the large tooth. These could easily be overlooked from some angles of view and may have been further obscured by setae in the dry specimens Žabka examined. Other characters of our male spec-

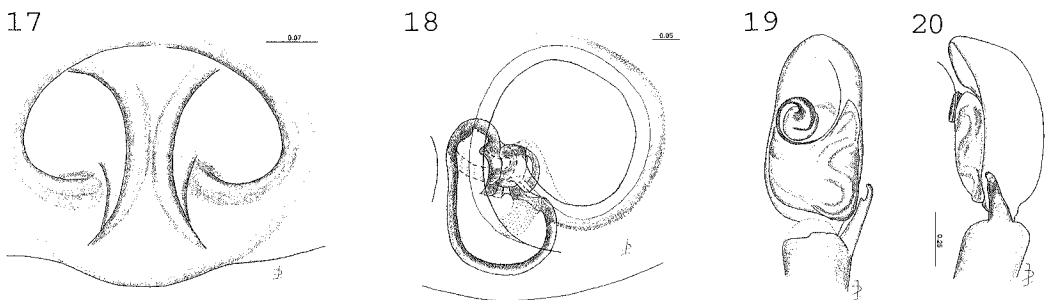


Map 2.—Distribution of four species of *Ascyltus* in the Pacific. *Ascyltus pterygodes* (★), *Ascyltus divinus* (△), *Ascyltus similis* new species (□), *Ascyltus rhizophora* new species (◇).

imens match Žabka's description and illustrations well. Apparent differences in the females are attributed to individual variation, different styles of drawing and differences in the condition of the specimens. As the males of no other species have an anterior ridge on the chelicera, we include our specimens in *A. divinus*.

Diagnosis.—Male chelicerae with sparse inconspicuous setae dorsally, with prominent diagonal sclerotized ridge, cusps of prolateral tooth small, running down one edge of tooth. Fang furrow with transverse ridges. Internal ducts of epigynum short, cheeks of female not expanded or rimmed by long setae.

Description.—*Male:* ($n = 3$). Total length 7.9–8.6 ($\bar{x} = 8.19$), length of carapace 3.3–3.6 ($\bar{x} = 3.50$), maximum carapace width 2.9–3.4 ($\bar{x} = 3.08$), eye field length 1.7–2.0 ($\bar{x} = 1.91$), eye row I width 2.4–2.7 ($\bar{x} = 2.54$). Cephalothorax yellowish-brown with eye field light brown, cheeks present but not prominent. Abdomen brownish-yellow, sides whitish,



Figures 17-20.—*Ascyltus divinus* Karsch. 17, Epigynum; 18, Internal structure of epigynum showing single spermatheca and ducts. 19, Left palp, ventral view; 20, Left palp, lateral view.

spinnerets light brown. Frontal aspect—eyes I surrounded by indistinct whitish setae, some with slightly orange shade, chelicerae with prominent black sclerotized ridge on anterior surface, anterior legs yellow. One proximal bicus, plus two low conical (one proximal to bicus and one distal to bicus) retrolateral teeth; one large 5-cusped prolateral cheliceral tooth (plus another conical one more distal). Ventral aspect: mouth parts brown, endites with antero-external edges rounded, sternum light brown, medially lighter; coxae yellow; abdomen ventrally whitish with four indistinct longitudinal lines of brownish spots. *Legs*: Leg formula 1-2-4=3, patella-tibia III equal to IV. Patella-tibia I length 4.3–6.0 (\bar{x} = 5.23). Legs yellow, spination of tibia I differs from the remaining species by lateral spines being only indistinctly shortened and presence of similar spines on retro-lateral surface as well, the same spination appears on tibia II. Palpal structures not distinctive.

Female: (n = 5). Total length 7.5–8.3 (\bar{x} = 7.91), length of carapace 2.6–3.4 (\bar{x} = 3.21), maximum carapace width 2.0–2.8 (\bar{x} = 2.55), eye field length 1.3–1.8 (\bar{x} = 1.67), eye row I width 2.0–2.4 (\bar{x} = 2.27). Differs from other *Ascyrtus* by absence of distinct cheeks, the cephalothorax here is as broad as under eyes III, but not broader. Cephalothorax with eye field fawn, an indistinct pattern of longer and broader whitish scales along midline, along posterior edge and along lateral eyes, surrounding two spots of light brownish scales; rims of eyes I covered dorsally with longer whitish scales, a few longer orange scales between AME. A whitish diamond-shaped area behind eye field followed by slightly darker, light fawn middle thorax with sparse orange setae, lower thorax and sides whitish. Abdomen whitish, with sparse widely spaced orange scales and also scattered dark, upright short bristles; no pattern visible. Frontal aspect: eyes I surrounded with white setae with an indistinct dot of orange setae laterally and medially, AME surrounded by light brown area, very thin laterally and ventrally, whitish area under ALE, expanded laterally but not making any extended plate, rimmed dorsally by a diagonal line of small whitish scales, followed laterally by a line of red scales running from ALE sideways. Clypeus with thin line of horizontal whitish setae. Chelicerae vertical and slightly diverging, bulging basally, yellow,

their length being about twice diameter of AME. One bicus retrolateral cheliceral tooth, four prolateral cheliceral teeth. Pedipalps whitish, with long white setae. Ventral aspect: generally whitish, chelicerae and mouth parts yellow. *Legs*: Leg formula 4-3-1-2; patella-tibia III equal to IV. Patella-tibia I length 2.0–2.9 (\bar{x} = 2.60). Legs yellowish dorsally with prominent brown spines, ventrally whitish. *Epigynum*: With septum broad at mid-length, internal duct short, inconspicuously looped (see Figs. 17, 18).

Material examined.—**Fiji**: *Viti Levu*, mangrove swamp by road near Namuka Harbor, sweeping, 1♀, 2 May 1987 (JWB & ERB). Nandarivatu, elev. 900 m, tree shaking in shrubs, 1♀, 11 April 1987 (JWB & ERB). Namosi Road, 7.7 km north of Queen's Road, roadside sweeping & shaking, 2♀2imm, 7 May 1987 (JAB, JWB & ERB). Lomaivuna Distr., 3 km N of Nanggali, tree shaking, in pine, 1♂1♀1imm, 30 May 1987 (JWB & ERB). Namosi District, hilltop forest about 7 km N of Queen's Road on Namosi Road, 1♂, 19 May 1987 (JWB & ERB). Nausori Highlands, forest reserve Koronsingalevu Block, elev. 1500 ft., sweeping & shaking, 1♂, 27 May 1987 (JWB & ERB).

Distribution.—Reported only from Fiji and Australia (Zabka 1988).

Ascyrtus similis new species

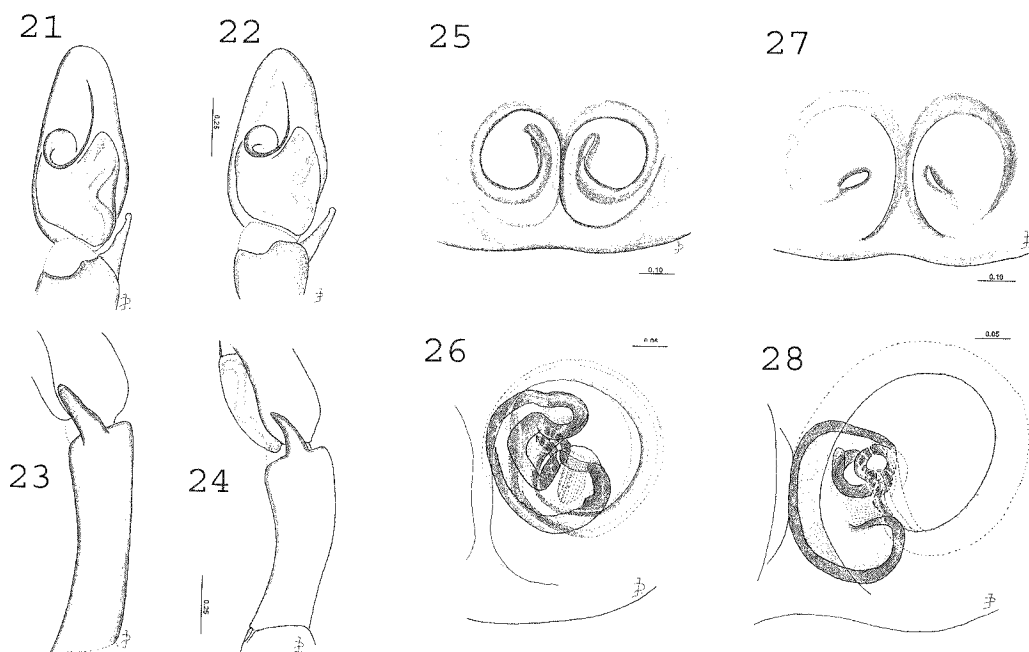
Figs. 2, 5, 12, 13, 15, 16, 21–28; Map 2

Holotype.—Male from Fiji: Viti Levu, 7 mi. N of Singatoka, sweeping and shaking bushes along river bank, 21 May 1987. (J.W. & E.R. Berry) (BPBM).

Etymology.—The name *similis*, similar, refers to the resemblance of this species to *A. pterygodes*.

Diagnosis.—Smaller than *A. pterygodes*, which it resembles. Male chelicerae lacking dorsal sclerotized ridge, fang furrow with only slight transverse ridges. Females with seta-rimmed cheeks. Epigynum with short internal ducts. Tibia of male palp only a little longer than cymbium.

Description.—*Male*: (n = 3). Total length 8.0–11.5 (\bar{x} = 9.57), length of carapace 4.4–5.2 (\bar{x} = 4.71), maximum carapace width 3.9–4.5 (\bar{x} = 4.08), eye field length 2.3–2.5 (\bar{x} = 2.38), eye row I width 2.9–3.0 (\bar{x} = 2.96). Cephalothorax brown, with eye field and ventral margins dark brown, cheeks very large and prominent. Abdomen with scutum brown, margins and sides lighter brownish grey.

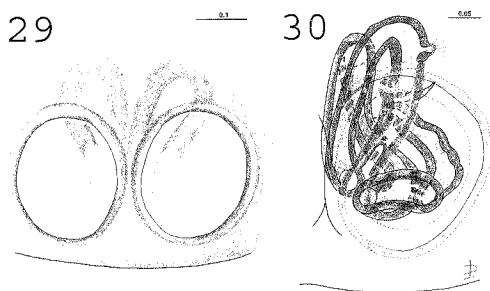


Figures 21–28.—*Ascyrtus similis* new species. Comparison of left palps and epigyna for specimens from Fiji and Samoa. Comparable structures are drawn to the same scale. 21, Palp, ventral view (Fiji); 22, Palp, ventral view (Samoa); 23, Palpal tibia, lateral view (Fiji); 24, Palpal tibia, lateral view (Samoa); 25, Epigynum (Fiji); 26, Internal structure of epigynum (Fiji); 27, Epigynum (Samoa); 28, Internal structure of epigynum (Samoa).

Frontal aspect: eyes I surrounded dorsally by orange setae, ventrally by white; chelicerae broad, blackish-brown, legs brown anteriorly. Retrolateral cheliceral teeth: one bicusps, plus two low rounded bumps, one proximal and one medial to the bicusps tooth; one four-cusped prolateral cheliceral tooth. Ventral aspect: mouth parts brown, endites with antero-external edges expanded triangularly, sternum light brown, medially lighter; coxae brownish-yellow; abdomen greyish ventrally with brownish scales. *Legs*: Leg formula 1-2-4-3; patella-tibia III equal to IV. Patella-tibia I length 4.9–5.7 (\bar{x} = 5.27). *Palp*: Structures as in *A. pterygodes* except for proportionately shorter tibia.

Female: (n = 5). Total length 9.8–12.6 (\bar{x} = 11.40), length of carapace 4.1–5.3 (\bar{x} = 4.79), maximum carapace width 3.3–4.5 (\bar{x} = 3.96), eye field length 2.0–2.7 (\bar{x} = 2.44), eye row I width 2.7–3.4 (\bar{x} = 3.08). Cephalothorax as brown as in male, with eye field and ventral margins dark brown; cheeks large and prominent, vertical horn-like tufts of stiff black bristles near eyes II, chelicerae not pro-

truding forward. Abdomen narrowing posteriorly, without scutum, with remnants of two intensely brown lateral streaks of narrow scales along posterior $\frac{2}{3}$ of abdomen, extended anteriorly by greyish scales, divided into three blocks by narrow gaps, median longitudinal area whitish with colorless scales; sides whitish covered with colorless scales. Spinnerets brownish. Frontal aspect: eyes I surrounded dorsally by orange setae, no surrounding setae ventrally, but with a few dark setae along edge of clypeus, and dense short whitish setae on bases of chelicera make a white line under AME; chelicerae bulging basally but directed vertically, much smaller than in male, light brown, covered with short and sparse whitish setae. One bicusps retrolateral cheliceral tooth, four prolateral cheliceral teeth. Ventral aspect: mouth parts brown, endites with antero-external edges rounded, sternum yellowish; coxae yellowish; abdomen ventrally whitish. *Legs*: Leg formula 1-3=4-2; patella-tibia III shorter than IV. Patella-tibia I length 3.6–5.2 (\bar{x} = 4.51). Legs brown ante-



Figures 29–30.—*Ascyllus rhizophora* new species from Fiji. 29, Epigynum; 30, Internal structure of epigynum showing single spermatheca and ducts.

riorly. *Epigynum*: See diagnosis and Figs. 25–28.

Material examined.—**FIJI**: *Viti Levu*, Suva, Lami Beach, on shrub foliage, 1♀, 3 May 1987 (JAB & ERB). Seven mi. N of Singatoka, sweeping & shaking bushes along river bank, 1♂ 1♀, 21 May 1987 (JWB & ERB); **AMERICAN SAMOA**: *Tutuila*, Fagatogo, 2♂ 1♀ imm, 13 July 1973 (JAB); 3♀ 5imm, 14 July 1973 (JAB).

Distribution.—Known only from Fiji and American Samoa.

Ascyllus rhizophora new species

Figs. 6, 29; Map 2

Holotype.—Female from Fiji: *Viti Levu*, near Namuka Harbor, mangrove swamp, sweeping, 2 May 1987, (J.W. & E.R. Berry) (BPBM).

Etymology.—A noun in apposition after the mangrove genus *Rhizophora*.

Diagnosis.—Female with long internal epigynal ducts that loop forward beyond anterior margin of “windows”. With seta-rimmed cheeks.

Description.—*Male*: Male is unknown.

Female: ($n = 1$). Total length 8.7, length of carapace 4.0, maximum carapace width 3.2, eye field length 1.9, eye row I width 2.6. Resembles other *Ascyllus* by small cheeks, extended by rims of bent setae; rims of eyes I covered dorsally with reddish setae. Cephalothorax whitish, with eye field anteriorly dark brownish-grey. Very indistinct, small, transparent adpressed scales, colorless and light brown; posterior median whitish area on eye field is continued as median broad whitish belt along the whole length of thorax, limited on both sides by broad darker belts, consisting of small grey spots and covered with semi-trans-

parent brownish scales; sides whitish covered in upper parts by sparse brownish scales, lower sides whitish, limited by the thin dark brown line on the ventral edge. Abdomen with distinct reddish-brown pattern on whitish background (Fig. 6). Frontal aspect: eyes I surrounded with orange-red setae, face appears light greyish-brown, due to scales and setae on pale tegument; cheek plates small but broader than cephalothorax behind them, covered by adpressed brownish-grey, shiny setae, rimmed laterally by a thin indistinct line of white setae, dorsally by a diagonal line of red scales running from ALE sideways. Clypeus obsolete, with a thin line of horizontal whitish setae. Chelicerae vertical and slightly diverging, bulging basally, yellow, their length being about twice diameter of AME. Pedipalps whitish, with long white setae and a spot of brownish scales on patella. One retrolateral cheliceral tooth, four prolateral cheliceral teeth. Ventral aspect: generally whitish, chelicerae and mouth parts yellow. *Legs*: Leg formula 4-3-1-2, patella-tibia III equal to IV. Patella-tibia I length 3.8. Legs dorsally yellowish with indistinct darker rings and prominent brown spines; ventrally whitish. *Epigynum*: See diagnosis and Figs. 29, 30.

Material examined.—**FIJI**: only the holotype.

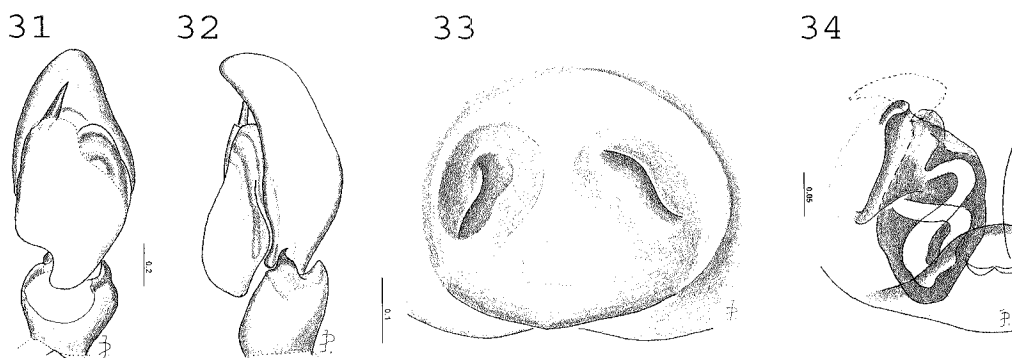
Distribution.—Known only from Fiji.

Genus *Bavia* Simon 1877

Discussion.—Prószyński (1990) catalogs 12 species of *Bavia*, occurring from the Philippines and southeast Asia to Australia. Five of these have recently been discussed by Zabka (1988), who questions the placement of *B. annamita* Simon 1903 and *B. thorelli* Simon 1903 in the genus. We describe two additional species.

Diagnosis.—Distinguishable from the few other pluridentate genera in the Pacific (*Lagnus* L. Koch 1879, *Myrmarachne* MacLeay 1838 and *Lepidemathis* Simon 1903) by having the pedicel concealed by anterior part of abdomen, coxae II and III not more widely spaced antero-posteriorly than other coxae, cephalothorax low, relatively flat and strongly convex laterally, ocular quadrangle parallel-sided, cheliceral retromargin with 6–7 small, acute contiguous teeth, promargin with three larger teeth, the middle one the largest.

Descriptive notes.—Medium-to-large pluridentate salticids with low broad carapace,



Figures 31–34.—*Bavia aericeps*. 31, Left palp ventrally; 32, Palp laterally; 33, Epigynum; 34, Internal structure of epigynum showing left spermatheca and ducts.

elongate, narrow abdomen broadest anteriorly and narrowing to posterior end, with long spinnerets. Endites much longer than wide, often abruptly expanded distally. First pair of legs longest, more robust and darker in color than other legs. Tibia with ventral spines in two rows of three each, metatarsi with 2–2 ventral spines in distal half. First legs and carapace reddish-brown, with spots or short streaks of light colored scales on carapace. Other characters as in diagnosis and species descriptions.

Bavia aericeps Simon 1877

Figs. 31–34, 45; Map 3

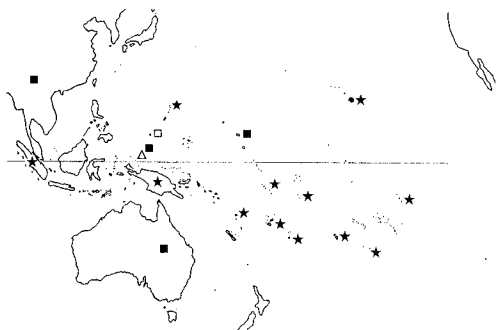
Bavia aericeps Simon 1877: Žabka 1988b.

Acompse suavis L. Koch 1879: Keyserling 1883.

Description.—*Male*: ($n = 5$). Total length 8.4–11.3 ($\bar{x} = 10.16$), length of carapace 3.5–4.9 ($\bar{x} = 4.14$), maximum carapace width 2.4–3.9 ($\bar{x} = 3.10$), eye field length 1.6–2.3 ($\bar{x} = 1.98$), eye row I width 2.0–2.6 ($\bar{x} = 2.24$). Cephalothorax reddish-brown, lighter dorsally, eye field dark brown, followed by transverse whitish spot, a few small colorless setae along lateral eyes and a row of long brown and reddish bristles above eyes I; posterior slopes of thorax and sides with few erect black setae, a few white spots on posterior thoracic slope. Abdomen with three longitudinal streaks: the median one whitish, the two marginal ones darker, weakly brownish-violet in alcohol, followed by three pairs of small spots; a thin marginal whitish line anteriorly, expanding into whitish sides; spinnerets light brownish-grey. Face brown with dense white clypeal “mustache”, eyes I surrounded by indistinct reddish setae. Diameter of AME = 2.5

diameters of ALE. Six retrolateral cheliceral teeth, three prolateral cheliceral teeth. *Legs*: Leg formula 1-4-2-3, patella-tibia III shorter than IV. Patella-tibia I length 3.0–5.2 ($\bar{x} = 3.96$). Femur and tibia I with inconspicuous spots of whitish setae prolaterally in middle of patella and apex of tibia. Tarsus I light yellow. Endites elongate with a rectangular elongate expansion along external edge. Chelicerae posteriorly brown, endites, labium and anterior coxae light greyish-brown, coxae III-IV whitish-yellow; sternum yellow, brown rimmed; abdomen ventrally greyish-white with light brown, sclerotized epigastric fold, grey rectangular area in the posterior third of abdomen, spinnerets surrounded by a narrow dark ring. *Palp*: Embolus short and straight (Figs. 31, 32). Pedipalps light brownish-grey, without contrasting spots, with longer dark setae along prolateral edge of cymbium and tibia.

Female: ($n = 5$). Total length 9.7–12.5 ($\bar{x} = 10.70$), length of carapace 4.3–4.9 ($\bar{x} = 4.62$), maximum carapace width 3.3–3.9 ($\bar{x} = 3.56$), eye field length 2.1–2.4 ($\bar{x} = 2.20$), eye row I width 2.3–2.6 ($\bar{x} = 2.40$). Colors as in male, except behind eye field there is a whitish transverse area with fovea in the middle, pedipalps with flattened dorsal surfaces, yellow, medially dark brown, framed laterally with dense fringes of white, short setae. Six retrolateral cheliceral teeth, three prolateral cheliceral teeth. Endites elongate, externally broadened and rounded, without depression or expansion. *Legs*: Leg formula 1-4-2-3, patella-tibia III shorter than IV. Patella-tibia I length 3.3–3.8 ($\bar{x} = 3.57$). *Epigynum*: With openings widely separated, posterior margin



Map 3.—Distribution of four species of *Bavia* in the Pacific. *Bavia aericeps* (☆), *Bavia sexpunctata* (■), *Bavia fedor* new species (□), *Bavia sonsorol* new species (△).

projecting in midline, internal duct relatively wide (Figs. 33, 34).

Material examined.—**COOK ISLANDS:** *Rarotonga*, Muri, on taro leaf in yard, 1♀, 24 March 1987 (JAB). Tupapa Valley, on grass, 1♂, 2 April 1987 (JAB). Taakoka Island, tree shaking, 1♂3♀6imm, 23 March 1987 (JWB & ERB). Arorangi, Are Metua at Rutaki Road, 1♂2imm, 9 March 1987 (JWB & ERB). Arorangi village, elev. 30 m, tree shaking, 1♂4imm, 14 March 1987 (JWB & ERB). Arorangi village, on house, 1♂, 9 March 1987 (JWB & ERB). Avarua, 0–100 m, 1♀5imm, August 1979 (N.L.H.Krauss) (BPBM). Avarua, 0–100 m, 3♂1imm, August 1979 (N.L.H.Krauss) (BPBM). Titikaveka, 0–100 m, 1♀imm, October 1977 (N.L.H.Krauss) (BPBM). *Aitutaki*, Tautu, tree shaking, 1♀2imm, 26 March 1987 (JAB & JWB). **AMERICAN SAMOA:** *Tutuila*, Fagatogo, shaken from dead lower leaves of bananas, 1♀3imm, 14 July 1973 (JAB). Fagatogo, shaken from dead lower leaves of bananas, 1♂2imm, 13 July 1973 (JAB). **FIJI:** *Viti Levu*, about 5 mi. W of Nausori, Nanduruloulou Res. Station, 1♂1♀2imm, 15 May 1980 (JAB). **SOCIETY ISLANDS:** *Moorea*, Paopao village, litter, elev. 100 m, 1♀2imm, 11 January 1987 (JWB & ERB). *Huahine*, Fare, 1♀2imm, February 1961 (N.L.H.Krauss) (BPBM). Fare, 0–100 m, 1♂, March 1972 (N.L.H.Krauss) (BPBM). *Raiatea*, Utotoa, 0–100 m, 1♀, March 1972 (N.L.H.Krauss). **MARQUESAS ISLANDS:** *Hiva Oa*, above Atuona, elev. 500 m, sweeping and shaking vegetation, 1♂3imm, 12 February 1987 (JWB & ERB). **AUSTRAL ISLANDS:** Rurutu, Moerai, 0–150 m, 1♂2♀1imm, October 1977 (N.L.H.Krauss) (BPBM). **GILBERT ISLANDS:** Pacific Sci. Bd., 1♂ (E.T. Moul) (BPBM).

Distribution.—Sumatra, New Hebrides, Fiji, Samoa, Marquesas, Hawaii, New Guinea,

Marianas, Ellice, Austral, Gilbert, Cook and Society Islands.

Bavia sexpunctata (Doleschall 1859)

Figs. 35–38, 46; Map 3

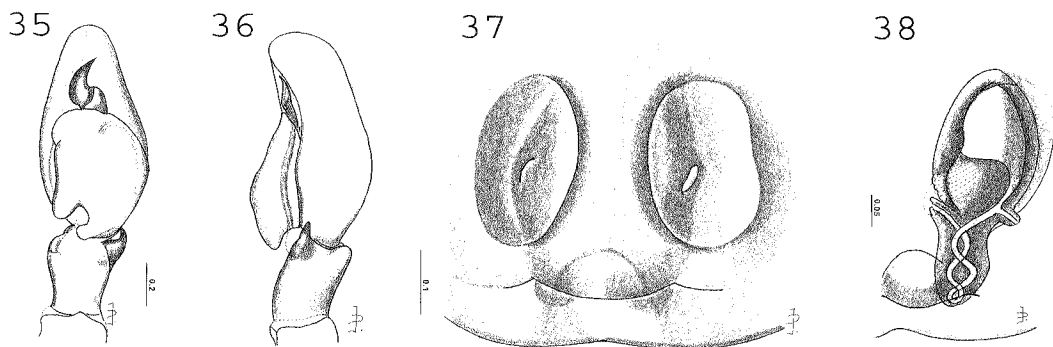
Salticus sexpunctatus Doleschall 1859.

Bavia sexpunctata: Thorell 1890; Prószyński 1984; Żabka 1988.

Acompse dulcinervis L. Koch 1879; Thorell 1881.

Description.—**Male:** ($n = 5$). Total length 8.1–10.8 ($\bar{x} = 9.14$), length of carapace 3.4–4.2 ($\bar{x} = 3.74$), maximum carapace width 2.4–3.4 ($\bar{x} = 2.96$), eye field length 1.8–2.2 ($\bar{x} = 1.96$), eye row I width 2.0–2.5 ($\bar{x} = 2.24$). Cephalothorax reddish-brown, gradually lighter dorsally, eye field dark brown, followed by broad transverse lighter area with a few whitish setae, a few small whitish scales along lateral eyes and a spot of white setae above junction of AME; posterior slopes of thorax and sides with few small erect black setae, sparse smaller brown ones, and a few irregular lines of white setae and scales. Abdomen with median area whitish limited by several pairs of elongate spots, lateral to which are many short narrow violet-brown spots, lower sides whitish, spinnerets light yellowish-brown. Face brown with white setae along ventral edge of clypeus, with triangular median patch of whitish setae above AME, and surrounded with inconspicuous reddish setae. ALE almost touching AME, diameter of AME = 2 diameters of ALE. Apical part of cymbium and prolateral part of its basal half whitish-yellow, retrolateral basal part brownish, tibia retrolaterally blackish, prolaterally whitish-yellow, patella and femur brown with marginal rows of short white setae. Seven retrolateral cheliceral teeth, three prolateral cheliceral teeth. Endites elongate with small triangular expansion pointed anteriorly. Endites, labium, anterior coxae and sternum brown, coxae II yellowish-brown, coxae III–IV whitish-yellow; abdomen ventrally greyish-white with light brown, sclerotized epigastric fold, long light grey rectangular area in the posterior third of abdomen, no dark ring around spinnerets. **Legs:** Leg formula 1-4-2-3; patella-tibia III shorter than IV. Patella-tibia I length 3.5–4.9 ($\bar{x} = 4.02$). Inconspicuous spots of whitish setae prolaterally in middle patella and apical tibia. Tarsus I light yellow. **Palp:** With embolus broad and sickle-shaped, bulb with proximal bifurcation (Figs. 35, 36).

Female: ($n = 5$). Total length 10.0–12.0 ($\bar{x} = 11.04$), length of carapace 4.0–4.5 ($\bar{x} =$



Figures 35–38.—*Bavia sexpunctata*. 35, Left palp ventrally; 36, Palp laterally; 37, Epigynum; 38, Internal structure of epigynum showing right spermatheca and ducts.

4.20), maximum carapace width 3.2–3.7 (\bar{x} = 3.32), eye field length 2.1–2.3 (\bar{x} = 2.20), eye row I width 2.3–2.5 (\bar{x} = 2.36). Behind eye field there is a light orange transverse area with fovea in the middle, with minute white setae; slopes of thorax and sides covered with sparse white setae. Face brown with line of longer, white setae along ventral edge of clypeus. Chelicerae bulging basally. Seven retrolateral cheliceral teeth, three prolateral cheliceral teeth. Pedipalps with flattened dorsal surfaces, yellow, medially dark brown, framed laterally with dense fringes of white, short setae. Endites elongate, externally rounded, without depressions or expansions. Chelicerae posteriorly, endites, labium, anterior coxae and sternum brown, coxae II yellowish-brown, coxae III–IV whitish yellow; abdomen ventrally greyish-white with light grey rectangular area in the posterior third of abdomen. A very small and inconspicuous protuberance with dark setae in front of spinnerets, no dark ring around spinnerets. *Legs*: Leg formula 1=4-2-3; patella-tibia III shorter than IV. Patella-tibia I length 3.4–3.8 (\bar{x} = 3.52). *Epigynum*: With large oval depressions separated by a septum much narrower than in *B. aeri-ceps*, internal ducts narrow (Figs. 37, 38).

Material examined.—CAROLINE ISLANDS: *Palau Islands*, Arakabesan I., mixed forest, shaken from trees, 50–75 ft. el., 1♂1imm, 16 February 1973, (JWB). Arakabesan I., in fallen betel palm fronds, 1♀6imm, 23 March 1973 (JWB & JAB). Malakal I., shaken from fallen palm fronds, 1♀4imm, 8 March 1973 (JWB & JAB). Koror I., shaken from trees at Japanese temple ruins, 1♀1imm, 17 March 1973 (JWB & JAB). Koror I., shaken from banana trees, 2♀1imm, 21 March 1973 (JAB & JWB). Koror I., taro patch, 2♂4♀17imm,

7 March 1973 (JAB & JWB). Koror I., near taro patch, from nipa palm inflorescences, 2♀, 9 May 1973 (JAB & JWB). Babelthup I., Airai, low tropical forest N of airstrip, 2♂5♀14imm, 27 March 1973 (JAB & JWB). Babelthup I., Airai, from fallen betel palm fronds, 2♀8imm, 11 March 1973 (JAB & JWB). Babelthup I., Airai, tree shaking near SDA school, 1♂2♀, 11 March 1973 (JAB & JWB). Babelthup I., Ngaremlengui, forest, 1♂9imm, 21 April 1973 (JAB & JWB). Peleliu I., mixed tropical forest, 2♀13imm, 22 March 1973 (JWB & ERB). Angaur I., shaken from trees, mixed tropical forest, 1♀3imm, 30 April 1973 (JAB & JWB). Angaur I., banana-betel palm community, 4♂2♀15imm, 27 April 1973 (JAB & JWB). Tobu I., shaken from trees, forest, 1♀23imm, 8 April 1973 (JWB & ERB). **MARSHALL ISLANDS**: *Kwajalein Atoll*, Ennylebegan, shaken from trees, 1♀, 21 July 1969 (JWB). *Kwajalein Atoll*, Gugeegu, shaken from trees, 1♀2imm, 24 July 1969 (JWB).

Distribution.—India to Australia, Caroline Islands, Marshall Islands.

Bavia fedor new species

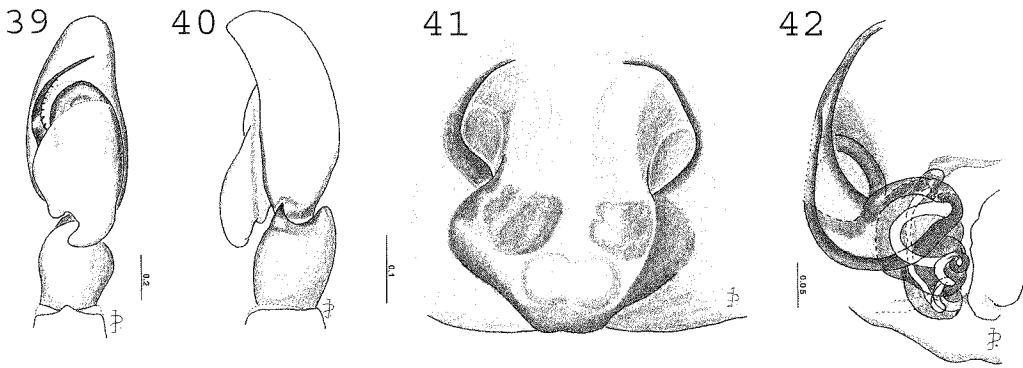
Figs. 39–42, 47; Map 3

Holotype.—Male from Caroline Islands, Yap, Yap Island, Fedor village, in taro patch, 11 February 1980 (J.W. Berry) (BPBM).

Etymology.—This species is named in honor of the people of Fedor village in the Yap Islands where it was collected.

Diagnosis.—Male with a distinct rounded dorsal tibial apophysis on the palp, in addition to the lateral apophysis; female epigynum with broad septum between openings (Fig. 41). Other species lack dorsal apophysis on male palp (Figs. 45–48) and have distinctly different epigyna.

Description.—*Male*: (n = 3). Total length



Figures 39–42.—*Bavia fedor* new species from Yap. 39, Left palp ventrally; 40, Palp laterally; 41, Epigynum; 42, Internal structure of epigynum showing left spermatheca and ducts.

6.0–7.5 (\bar{x} = 6.75), length of carapace 2.7–3.9 (\bar{x} = 3.26), maximum carapace width 2.0–3.0 (\bar{x} = 2.50), eye field length 1.3–1.9 (\bar{x} = 1.66), eye row I width 1.6–2.2 (\bar{x} = 1.90). Cephalothorax resembles *Bavia aericeps* except: face light brown with sparse greyish-brown setae, no contrasting line of white setae along ventral edge of clypeus, ALE aligned $\frac{1}{4}$ of their diameter above dorsal rim of AME, almost touching them, diameter of AME = 2 diameters of ALE, pedipalps brownish-yellow, with a peculiar plate-like dorsal process on palpal tibia, apart from lateral apophysis, prominent but isolated bunches of longer greyish setae prolaterally on cymbium, tibia and patella. Endites elongate, broader apically and narrowing basally, with oval depression on the external apical edge followed by semi-circular expansion. Six retrolateral cheliceral teeth, three prolateral cheliceral teeth. *Legs*: Leg formula 1=4-2-3; patella-tibia III shorter than IV. Patella-tibia I length 2.2–4.1 (\bar{x} = 3.10). Leg I light brown with tarsus I whitish, inconspicuous spot of whitish setae prolaterally on patella; tarsus I white, remaining leg I brownish-yellow, denser and longer grey setae ventrally on patella-tibia-metatarsus I and along ventro-retrolateral edge of femur I; no such setae on legs II–IV, which are lighter, brownish-yellow. *Palp*: With bulb deeply notched proximally as in *B. sexpunctata*. Embolus long, slender and curved; attached near distal end of bulb.

Female: (n = 2). Total length 9.5–10.6 (\bar{x} = 10.05), length of carapace 3.8–4.6 (\bar{x} = 4.20), maximum carapace width 3.0–3.8 (\bar{x} = 3.40), eye field length 1.9–2.2 (\bar{x} = 2.05), eye row I width 2.2–2.4 (\bar{x} = 2.30). Six retrola-

teral cheliceral teeth, four prolateral cheliceral teeth. *Legs*: Leg formula 1=4-2-3, patella-tibia III shorter than IV. Patella-tibia I length 3.1–3.9 (\bar{x} = 3.50). Coloration essentially as in male. *Epigynum*: See diagnosis and Figs. 41, 42).

Material examined.—**CAROLINE ISLANDS:** Yap, Fedor Village, on coconut fronds, 1♀, 12 March 1980 (JWB). Fedor Village, taro patch, 1♂, 11 February 1980 (JWB). Fanif, on nipa palm petiole, 1♀, 14 April 1980 (JWB). Colonia, near house, 1♂, 19 March 1980 (JWB). Gagil-Tomil, shaking banana leaves, 1♀, 29 May 1973 (JAB & JWB). *Fais Island*, (no date), 1♀, E12087 (BPBM).

Distribution.—Known only from Yap and Fais in the Caroline Islands.

Bavia sonsorol new species

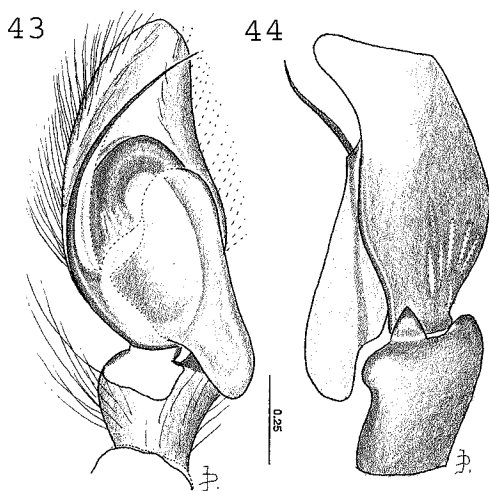
Figs. 43, 44, 48; Map 3

Holotype.—Male from Caroline Islands, Sonsorol Island, mixed tropical forest, 6 April 1973 (J.W. & E.R. Berry) (BPBM).

Etymology.—This species is named for the island of Sonsorol in the Palau Islands where it was collected.

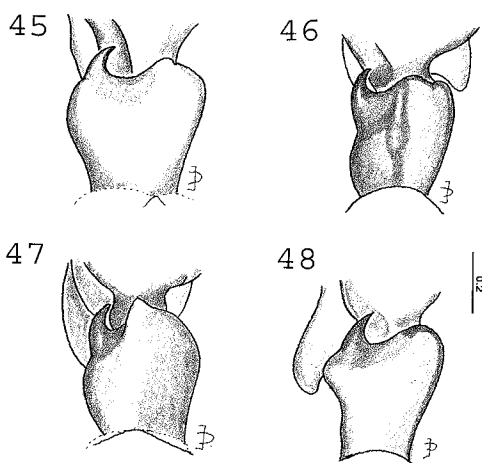
Diagnosis.—Palp with broadly triangular lateral tibial apophysis which, in the only available specimen, is transparent and difficult to see. Lateral apophysis of the other species narrower basally (Figs. 43, 44, 45–48).

Description.—*Male*: (n = 1). Total length 8.1, length of carapace 3.5, maximum carapace width 3.2, eye field I length 1.6, eye row I width 1.9. Cephalothorax oval, broadening at the level of eyes III, brown, lighter dorsally, eye field fawn, followed by yellowish area behind, posterior slope of thorax dorsally lighter brown, yellowish at the hind margin. Cepha-



Figures 43, 44.—*Bavia sonsorol* new species from Sonsorol, Palau District. 43, Left palp ventrally (bulb collapsed); 44, Palp laterally.

lothorax almost bare, with whitish setae on thoracic slope and very dense whitish setae beneath and surrounding lateral eyes; a row of sparse short, indistinct setae diagonally from ALE along the crest of broadened area, somewhat reminiscent of cheeks in *Ascyltus*; a row of long colorless and yellowish horizontal setae above eyes I. Abdomen in alcohol whitish. Spinnerets yellowish-brown. Face light reddish-brown. Thick lines of white setae on the reddish-brown chelicerae: one vertical along prolateral edge, the second, transverse across basal part of chelicerae. ALE aligned $\frac{1}{3}$ of their diameter above dorsal rim of AME, almost touching them, diameter of AME = 0.7, diameters of ALE = 0.3 mm. Endites elongate, semicircularly broader apically and narrowed basally, without oval depression on the external apical edge or any separate expansion. Chelicerae, endites, and labium brown, anterior coxae light brown, coxae II-IV whitish-yellow; sternum pale yellow, brown rimmed; abdomen ventrally greyish-white with light brown epigastric fold, light grey square area in the posterior part of abdomen, no dark ring around spinnerets. Five retrolateral cheliceral teeth, three prolateral cheliceral teeth. *Legs*: Leg formula presumably 1-4-2-3, but portions of the first legs missing. Patella-tibia III shorter than IV. Prolateral surface of femur I brown, shiny, its upper part and remaining parts of the segment with inconspicuous, sparse, short whitish setae. *Palp*:



Figures 45–48.—Comparison of left palpal tibia dorsally in four species of *Bavia*. 45, *Bavia aeri-ceps*; 46, *Bavia sexpunctata*; 47, *Bavia fedor* new species; 48, *Bavia sonsorol* new species.

Pedipalps light brown, almost bare, prolateral surface of palpal tibia broad, with anterior edge curved and rising dorsally; spots of white setae on dorsal half of patella and dorsally on cymbium, just in front of tibia, with triangular apophysis.

Female: Female is unknown.

Material examined.—Only the holotype.

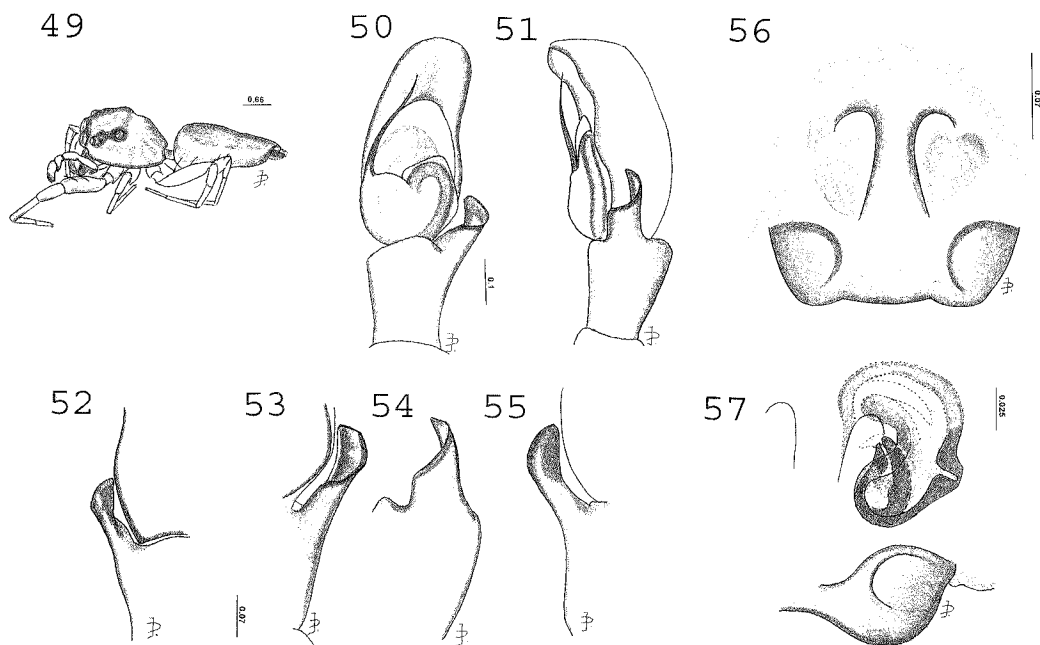
Distribution.—Known only from the island of Sonsorol in the Caroline Islands.

Genus *Cosmophasis* Simon 1901

Discussion.—Approximately 40 species are currently placed in this genus by Prószyński (1990), but he also states that the [nine] African species are not congeneric with those from Asia. No species of the genus have been reported previously from the Pacific Island region (as here defined). Bonnet (1956), quoted by Prószyński (1990), mistakenly listed *C. maculiventris* Strand 1911, from Indonesia, as occurring in Polynesia. Two species from New Guinea are illustrated by Chrysanthus (1968).

Diagnosis.—Medium-sized unidentate salticids of Simon's group Chrysilleae. Distinguished from other Pacific genera of the group by: ocular quadrangle parallel-sided or widening posteriad, long embolus and septate epigynum (Figs. 50, 56), and the covering of flattened iridescent scales over much of the body.

Descriptive notes.—Cephalothorax relatively low (42–50% of length of cephalotho-



Figures 49–57.—*Cosmophasis arborea* new species from Yap in the Caroline Islands. 49, General appearance of male; 50, Left palp ventrally; 51, Palp laterally; 52, Tibial apophysis dorsally; 53–55, Variation in tibial apophysis of another specimen —ventrally, laterally, and dorsally; 56, Epigynum; 57, Internal structure of epigynum, single spermatheca and ducts.

rax), with the highest point at the level of eyes III, from which it very gently slopes anteriorly and posteriorly to the posterior thoracic slope. When alive iridescent due to dense, minute scales which could be seen on preserved specimens only with difficulty. Abdomen elongate (with parallel sides in males, slightly more oval in females), gradually tapering posteri-

orly; spinnerets cylindrical and relatively long. Frontal aspect: eyes I aligned straight along dorsal-most point of their rim, ALE diameter $\frac{1}{2}$ – $\frac{2}{3}$ of AME, clypeus very low, in some cases obsolete, chelicerae of average size, length about $1\frac{1}{2}$ diameters of AME. Pedipalps slender. One retrolateral cheliceral tooth, two prolateral cheliceral teeth. *Legs*: Thin and long, tibia I has two ventral rows of three spines each and two prolateral spines.

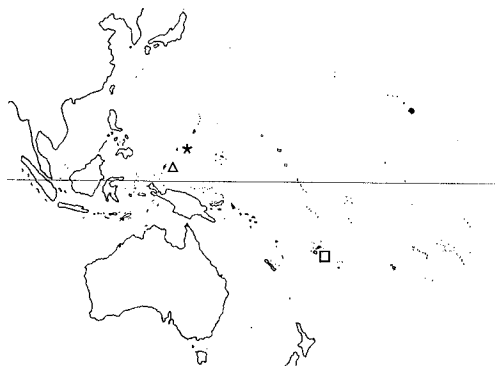
Cosmophasis arborea new species

Figs. 49–57; Map 4

Holotype.—Male from Yap, Yap Island, Colonia, litter and shaking trees on hill behind Protestant mission near bay, 31 May 1973 (J.W. Berry) (BPBM).

Etymology.—The name refers to the fact that many of the specimens were taken from trees.

Discussion.—The species is closely related to *Cosmophasis marxi* (Thorell 1890a) (Prószyński 1984:21–23) from Java. More distant relations include *Cosmophasis laticlavata* (Thorell 1892) from Sumatra, *Cosmophasis*



Map 4.—Distribution of three new species of *Cosmophasis* in the Pacific. *Cosmophasis arborea* new species (*), *Cosmophasis lami* new species (□), and *Cosmophasis muralis* new species (△).

olorina (Simon 1901b) from Sri Lanka and the species from Java misidentified in the Simon collection as *C. "thalassina"*. All these species are relatives of the type species *C. thalassina* (C.L. Koch 1846) as redescribed by Zabka 1988, which differs by the anterior location of embolus, which arises from a broad basis, separated from the bulb, and by longer tibial apophysis.

Diagnosis.—Origin of embolus at about midlength of bulb prolaterally, shape of tibial apophysis and cymbium of male palp, and form of epigynum and its internal structure distinguish *arborea* from other Pacific species of the genus.

Description.—*Male*: ($n = 5$). Total length 4.7–5.4 ($\bar{x} = 5.10$), length of carapace 2.1–2.3 ($\bar{x} = 2.21$), maximum carapace width 1.5–1.9 ($\bar{x} = 1.75$), eye field length 1.0–1.7 ($\bar{x} = 1.24$), eye row I width 1.3–1.5 ($\bar{x} = 1.40$). Cephalothorax brown, eye field darker brown, lower rim of cephalothorax dark brown to almost black. Abdomen dark dorsally, with indistinct whitish, median lines and traces of 2–3 transverse lines; margins of dorsal surface with whitish rim, posterior tip of abdomen and spinnerets black. Minute dark bristles scattered over abdomen. Frontal aspect yellow, framed by dark brown eye field and blackish edge of clypeus; eyes I surrounded with white and yellowish scales; clypeus darker with a few large, colorless scales. Chelicerae fawn, near rectangular, apically depressed, with higher retrolateral and apical rim; the apical edge ends in a triangular tooth-like process, from that point the edge turns diagonally and is armed with two conical teeth, opposite fang's tip. Pedipalps slender, white with darker brown-yellow cymbium and prominent bent tibial apophysis. Palpal cymbium moderately elongate, with embolus arising anteriorly from a broad base, separated from bulb, tibial apophysis longer than related species, in form of a slightly twisted plate, with a diagonally cut tip; there is some variation in the shape of apophysis (Figs. 52–55). Ventral aspect: mouth parts light brown, sternum yellow with greyish-brown margin, coxae and ventral surfaces of femora yellowish-white; abdomen ventrally greyish-brown. *Legs*: Leg formula 1-4-3-2, patella-tibia III shorter than IV. Patella-tibia I length 2.1–2.6 ($\bar{x} = 2.38$). Legs thin and long, yellow, legs I slightly darker

with grey spot laterally near extremities of tibia.

Female: ($n = 3$). Total length 4.4–5.1 ($\bar{x} = 4.85$), length of carapace 2.05–2.10 ($\bar{x} = 2.07$), maximum carapace width 1.45–1.55 ($\bar{x} = 1.50$), eye field length 1.05–1.10 ($\bar{x} = 1.08$), eye row I width 1.1–1.4 ($\bar{x} = 1.27$). Cephalothorax light brownish-yellow with slightly darker brown eye field; covered with adpressed scales, practically invisible, except on darker areas around eyes; lower rim of cephalothorax brown. Abdomen light brownish-yellow, with indistinct thin irregular lines of darker scales, one scale broad, along lateral margins, and three transverse lines; spinnerets greyish-yellow. Minute dark bristles scattered over abdomen. Frontal aspect yellow, framed dorsally by brown eye field; eyes I surrounded with white and yellowish scales; clypeus obsolete; with a triangle of longer scales between AME. Chelicerae yellow. Pedipalps white, with yellow tarsus. Ventral aspect whitish-yellow. *Legs*: Leg formula 4-1-3-2, patella-tibia III shorter than IV. Patella-tibia I length 1.3, 1.5 ($n = 2$). Legs I thin and long, yellow. *Epigynum*: With two narrow grooves separated by a narrow rise, edges of plate rounded posteriorly (Figs. 56, 57).

Material examined.—CAROLINE ISLANDS: Yap, Colonia, night lighting, 1 ♀, 26 February 1980 (JWB). Colonia, litter and tree shaking on hills behind Evangelical Mission, 1 ♂, 31 May 1973 (JAB & JWB). Colonia, St. Mary's school, sweeping bushes, 1 ♀, 1 March 1980 (JWB). Dinay village, Pandanus/grass sweeping, 2 ♂ 1 ♀ 2 imm, 4 March 1980 (JWB). Gitam, shrub shaking, 1 ♂, 8 April 1980 (JAB & JWB). Gilman, shaking mango tree, 1 ♂ 1 imm, 15 April 1980 (JAB & JWB). Gagil-Tomil, shaking bananas, 2 ♂ 4 imm, 2 May 1973 (JWB & JAB). Colonia, tower hill, shaking, 1 ♂ 5 imm, 29 May 1973 (JWB & JAB). Map, Chool, tree shaking, 7 ♂ 2 imm, 12 April 1980 (JWB & JAB).

Distribution.—Known only from Yap in the Caroline Islands.

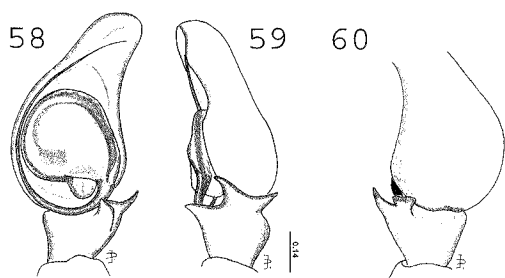
Cosmophasis lami new species

Figs. 58–60; Map 4

Holotype.—Male from Fiji, Viti Levu, Suva, Lami beach, on shrub foliage, 3 May 1987. (J.A. Beatty & E.R. Berry) (BPBM).

Etymology.—The specific name is a noun in apposition after the locality where the specimens were collected.

Diagnosis.—The long embolus originating



Figures 58–60.—*Cosmophasis lami* new species from Fiji. 58, Left palp ventrally; 59, Palp laterally; 60, Tibial apophysis dorsally.

at the retrolateral corner of the bulb and three-lobed palpal tibial apophysis distinguish *Cosmophasis lami* from males of other Pacific species.

Description.—*Male*: ($n = 2$). Total length 5.3, 5.6; length of carapace 2.3, 2.3; maximum carapace width 1.5, 1.5; eye field length 1.1, 1.1; eye row I width 1.4, 1.5. Cephalothorax uniform orange except for dark eye field; covered with colorless to slightly brownish scales, except eye field which has dense orange setae, elongate scales above rims of eyes I whitish. Abdomen ventrally lighter with large colorless scales. Dorsal surface orange, with lighter yellow marginal line, in one specimen there are also two indistinct lines of brown scales just above marginal line, in the mid-length of abdomen; posterior tip of abdomen slightly darker, spinnerets blackish-grey. Minute dark bristles scattered over abdomen, almost invisible. Frontal aspect: yellowish-fawn; eyes I surrounded with whitish scales; clypeus appears bare but has minute sparse brown setae and bristles. Chelicerae orange, apically light

yellow. *Legs*: Leg formula 1-4-3-2, patella-tibia III shorter than IV. Patella-tibia I length 1.7, 1.7. Legs I deep yellow, other legs various shades of yellow. *Palp*: With rounded bulb, embolus arising at the five o'clock position and half-encircling bulb medially. Tibial apophysis with three triangular rami.

Female: Female is unknown.

Material examined.—**Fiji**: Viti Levu, Suva, Lami Beach, on shrub foliage, the holotype and 1 other ♂, 3 May 1987 (ERB & JAB).

Distribution.—Known only from Viti Levu, Fiji.

Cosmophasis muralis new species

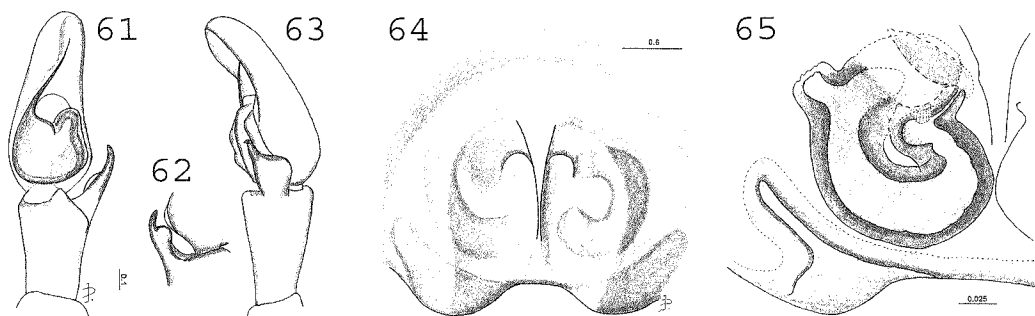
Figs. 61–65; Map 4

Holotype.—Male from Koror, Palau, on lab building, 8 March 1973 (J.A. Beatty & J.W. Berry) (BPBM).

Etymology.—*Muralis*, of the walls, because several specimens were collected on the outer walls of buildings.

Diagnosis.—The nearly straight embolus, about half the length of the cymbium, arising from anterior margin of the bulb, shape of male palpal tibial apophysis (resembling that of *Cosmophasis chlorophthalma* (Simon 1898)) and form of the epigynum and its outer ducts separate *C. muralis* from the other Pacific species of the genus.

Description.—*Male*: ($n = 5$). Total length 6.1–7.7 ($\bar{x} = 6.86$), length of carapace 2.5–3.2 ($\bar{x} = 2.82$), maximum carapace width 1.9–2.3 ($\bar{x} = 2.01$), eye field length 1.2–1.4 ($\bar{x} = 1.30$), eye row I width 1.6–1.9 ($\bar{x} = 1.69$). Cephalothorax brown with a transverse line of whitish scales behind eye field, eye field darker brown with colorless broad scales; ven-



Figures 61–65.—*Cosmophasis muralis* new species from Palau in the Caroline Islands. 61, Left palp ventrally; 62, Tibial apophysis dorsally; 63, Palp laterally; 64, Epigynum; 65, Internal structure of epigynum—single spermatheca and ducts.

tral margin with streak of whitish scales, bending on face and coming to the sides of AME. Abdomen reddish-brown with thin median whitish streak, and white margin around $\frac{3}{4}$ of abdomen, ending by small triangular spot; spinnerets darker. Frontal aspect: a row of horizontal bristles above eyes I, which are also surrounded dorsally by dense row of yellowish, inconspicuous setae, laterally and ventrally by whitish setae, clypeus yellowish-fawn, almost bare; chelicerae longer than usual, brown, with anterior surface flattened and apically depressed and limited by apical sclerotized ridge. *Legs*: Relative leg length 1-4-2=3, with patella-tibia III shorter than IV. Patella-tibia I length 2.3–3.2 (\bar{x} = 2.59). Legs light yellow, legs I with darkened prolateral surfaces of femur, tibia and metatarsus. *Palp*: Whitish, slender (see diagnosis and Figs. 61–63).

Female: (n = 5). Total length 6.3–7.1 (\bar{x} = 6.79), length of carapace 2.6–2.9 (\bar{x} = 2.74), maximum carapace width 1.8–2.1 (\bar{x} = 1.98), eye field length 1.3–1.4 (\bar{x} = 1.30), eye row I width 1.6–1.7 (\bar{x} = 1.67). Differs from male by lack of white line behind eye field, marginal white belt developed but indistinct on the background of yellowish lower sides; abdomen with two transverse white lines in the posterior half, anterior half bisected by thin median line and with thin white margin. *Legs*: Leg formula 4-3-1-2, patella-tibia III shorter than IV. Patella-tibia I length 1.7–1.9 (\bar{x} = 1.83). *Epigynum*: With narrow septum and two broad lunate posterior lobes.

Material examined.—CAROLINE ISLANDS:

Palau, Koror, on entomology lab building, 1♂ (holotype) 1♀ 1imm, 8 March 1973 (JAB & JWB). Koror, entomology lab on outside building wall, 1♂, 7 March 1973 (JAB). Koror, entomology laboratory building, 2♂ 4imm, 24 February 1973 (JWB & JAB). Koror, taro patch, 1♀ 4imm, 7 March 1973 (JWB). Koror, Japanese temple ruins, tree shaking, 1♀, 17 March 1973 (JAB & JWB). Koror, in cave entrance, 1♀, 17 March 1973 (JWB & JAB). Koror, scrub forest in vacant lot, tree shaking, 1♀, 13 February 1973 (JWB & JAB). Koror, entomology lab building, 1♂, 25 March 1973 (JWB & JAB). Koror, scrub forest in a vacant lot, tree shaking, 1♂ 2imm, 14 May 1973 (JAB). Babelthuap, Ngaremlengui, in woods, 1♂ 1♀ 1imm, 21 April 1973 (JWB & JWB). Angaur, banana-betel palm, 2♂, 27 April 1973 (JWB & JAB). Peleliu, mixed tropical forest, 3♂ 2♀ 16imm, 22 March 1973 (JWB & ERB).

Distribution.—Known only from the Palau group of the Caroline Islands.

Genus *Flacillula* Strand 1932

(*Flacilla* Simon 1901 —preoccupied)

Discussion.—The genus contains at present four species described from the Oriental Region and Pacific Islands. Palpal organs of the specimens studied correspond to that of the type species *Flacillula lubrica* (Simon 1901) (cf. Prószyński 1984:77) from Sri Lanka, general features of the epigynum agree with that of *Flacillula incognita* Żabka 1985 from Vietnam. *Flacilla kraussi* Marples 1964 has the typical stridulating apparatus of *Pseudicius* Simon 1885 and is here transferred to that genus (NEW COMBINATION).

Diagnosis.—Small, elongate unidentate salticids with all legs completely spineless except for one small distal prolateral spine on metatarsus I in both sexes. First legs robust with distal segments very short (tibia length = patella; metatarsus and tarsus shorter).

Descriptive notes.—Minute jumping spiders with shiny cephalothorax. The body is low and narrow. Abdomen elongate oval, 25–38% longer than cephalothorax, as broad as cephalothorax; in males covered by scutum, in females covered by thin tegument, with grey pigmented pattern. Face very low, its whole height occupied by AME, clypeus obsolete, diameter of ALE $\frac{2}{3}$ of AME, eyes I aligned in a straight line by their dorsal rims. Legs I are robust in both sexes, much broader than the others, with tibia and patella block-like with prominent angles; in male legs I are the longest, while in female the longest are IV (115–120%), legs II and III are practically of the same length in both sexes. The palpal organ is very simple; epigynum, also rather simple, so small that details are visible only with a compound microscope.

Flacillula minuta (Berland 1929)

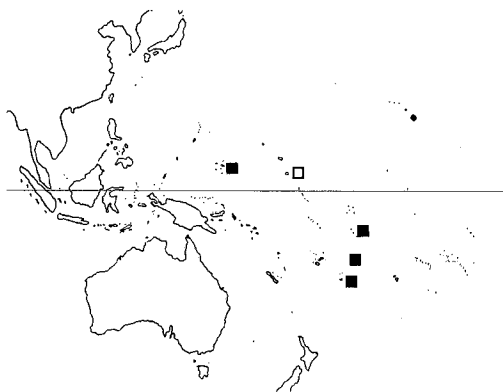
Figs. 66–68, 71–74; Map 5

Flacilla minuta Berland 1929a.

Flacillula minuta (Berland): Strand 1932.

Holotype.—Female from Samoa, Upolu, Malololelei, 2000 ft., (Buxton & Hopkins, in BMNH, examined).

Description.—*Male*: (n = 5). Total length 2.7–2.8 (\bar{x} = 2.70), length of carapace 1.05–1.4 (\bar{x} = 1.24), maximum carapace width 0.7–0.9 (\bar{x} = 0.81), eye field length 0.55–0.60 (\bar{x}

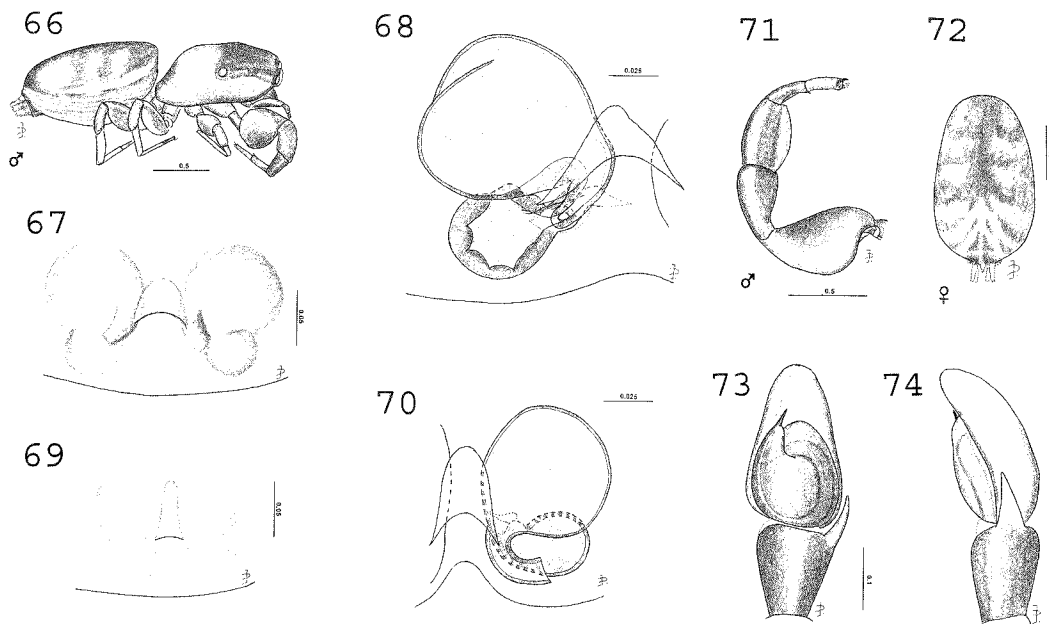


Map 5.—Distribution of two species of *Flacillula* in the Pacific. *Flacillula minuta* (■), *Flacillula nitens* new species (□).

= 0.59), eye row I width 0.6–0.7 (\bar{x} = 0.68). Cephalothorax shiny brown, with eye field darker, covered with minute papillae, and lines of similar papillae radiating from the fovea over the thorax and sides. Microscopic colorless setae scattered over eye field. Abdomen with distinct shiny brown scutum, integument

with pattern consisting of median grey area with lateral branches, but sometimes merging into larger grey areas. One retrolateral cheliceral tooth, three prolateral cheliceral teeth, of which two are very small. *Legs*: Leg formula 1-4-2-3; patella-tibia III shorter than IV. Patella-tibia I length 0.7–0.95 (\bar{x} = 0.85). Legs I light brown, remaining legs yellow; width of tibia I 54% of femur I, 61% of the length of respective segment. *Palp*: Embolus very thin and short, apical on bulb (Figs. 73, 74).

Female: (n = 5). Total length 2.8–3.15 (\bar{x} = 3.01), length of carapace 1.15–1.30 (\bar{x} = 1.24), maximum carapace width 0.8–0.9 (\bar{x} = 0.86), eye field length 1.15–1.30 (\bar{x} = 1.24), eye row I width 0.7–0.75 (\bar{x} = 0.72). Cephalothorax with more setae than male. Abdomen similar to male. One retrolateral cheliceral tooth, three prolateral cheliceral teeth. *Legs*: Leg formula 4-1-3-2; patella-tibia III shorter than IV. Patella-tibia I length 0.65–0.70 (\bar{x} = 0.68). Leg color as in male; width of tibia I 57% of femur I, 67% of the length of respective segment. *Epigynum*: With wide central hood (Figs. 67, 68).



Figures 66–74.—The genus *Flacillula*. 66–68, *Flacillula minuta*. 66, General appearance of male; 67, Epigynum; 68, Internal structure of epigynum —single spermatheca and ducts; 69, 70, *Flacillula nitens* new species from Ponape. 69, Epigynum; 70, Internal structure of epigynum —single spermatheca and ducts. 71–74, *Flacillula minuta*. 71, Leg I of male, prolaterally; 72, Abdominal pattern of female; 73, Left palp ventrally; 74, Palp laterally.

Material examined.—**COOK ISLANDS:** *Rarotonga*, Muri, shaking trees in yard, 1♂1♀1imm, 25 March 1987 (JWB & JAB). Turangi Valley, shaking trees, elev. 20 m, 1♂, 1 April 1987 (JWB & ERB). Turangi stream valley, near Ngatangia, shaking trees, 1♂1♀3imm, 18 March 1987 (JWB, ERB & JAB). Oneroa Island, sweeping, 1♀, 21 March 1987 (JWB & ERB). Arorangi Village, on citrus trees, 2♀4imm, 18 March 1987 (JWB & ERB). Taakoka Island, shaking trees, 3♀2imm, 23 March 1987 (JWB & ERB). **CAROLINE ISLANDS:** *Truk*, Moen, coconut trash, 1♂, 12 June 1973 (JWB & JAB).

Distribution.—Known from Caroline Islands, Niue, Samoa, and Cook Islands.

Flacillula nitens new species
Figs. 69, 70; Map 5

Holotype.—Female from Ponape, mountain top, tree shaking, 6 June 1973 (J.W. Berry & J.A. Beatty) (BPBM).

Etymology.—The name *nitens*, shining, refers to the shiny cuticle of the spider.

Diagnosis.—Epigynum narrower than in *Flacillula minuta* (Figs. 67, 69).

Description.—*Female:* ($n = 2$). Total length 2.75, 2.80, length of carapace 1.1, 1.1, maximum carapace width 0.7, 0.7, eye field I length 0.50, 0.55, eye row I width 0.6, 0.6. Differs from *Flacillula minuta* (Fig. 72) by having bare, shiny cephalothorax, abdomen in one specimen is bare and shiny, on second specimen there is grey pigmentation consisting of dense, irregular grey spots on light background. One retrolateral cheliceral tooth, three prolateral cheliceral teeth. *Legs:* Relative leg length 4-1=2=3; patella-tibia III shorter than IV. Patella-tibia I length 0.55 ($\bar{x} = 0.55$). *Epigynum:* With narrow hood (Fig. 69).

Male: The male is unknown.

Material examined.—**CAROLINE ISLANDS:** *Ponape*, mountain top, tree shaking, 1♀, 6 June 1973 (JWB & JAB). East of Kolonia, breadfruit/ivory nut forest, hand collecting, 1♀1imm, 8 June 1973 (JWB & JAB).

Distribution.—Known only from Ponape in the Caroline Islands.

Genus *Frigga* C.L. Koch

Diagnosis.—Medium-to-large unidentate salticids distinguished by Galiano (1979) in her revision of the genus by the presence of a bifid apophysis on the male palp and a deep notch, in which lies a scape, in the posterior

margin of the epigynum. A South American genus apparently introduced in the Pacific.

Frigga crocuta (Taczanowski 1878)

Amycus crocutus Tacz. 1878

Sandalodes calvus Simon 1902

Phiale bispinosa Banks 1930

Frigga crocuta (Tacz.): Galiano 1979

Discussion.—This species was formerly included in the genus *Sandalodes* Keyserling 1883 as *S. calvus* Simon 1902 and is apparently of South American origin (Galiano 1979). It occurs across the Pacific from South America to Australia. We have collected it only from the eastern Pacific islands, and it is especially common in the Marquesas Islands. It has been illustrated recently by Davies & Żabka (1989). The other eight species of the genus are restricted to South America (Galiano 1979).

Measurements.—*Male:* ($n = 5$). Total length 6.4–9.2 ($\bar{x} = 7.76$), length of carapace 3.2–4.6 ($\bar{x} = 3.78$), maximum carapace width 2.3–3.5 ($\bar{x} = 2.84$), eye field length 1.4–1.8 ($\bar{x} = 1.54$), eye row I width 1.8–2.3 ($\bar{x} = 2.02$). One retrolateral cheliceral tooth, two prolateral cheliceral teeth (sometimes low and set very close together, appearing to be a single notched tooth). *Legs:* Leg formula 1-3=4-2; patella-tibia III equal to IV. Patella-tibia I length 3.2–5.5 ($\bar{x} = 4.14$).

Female: ($n = 5$). Total length 6.2–7.6 ($\bar{x} = 6.92$), length of carapace 2.8–3.2 ($\bar{x} = 3.02$), maximum carapace width 1.9–2.4 ($\bar{x} = 2.20$), eye field length 1.2–1.4 ($\bar{x} = 1.26$), eye row I width 1.6–1.8 ($\bar{x} = 1.74$). One retrolateral cheliceral tooth, two prolateral cheliceral teeth. *Legs:* Leg formula 4-3-1-2; patella-tibia III=IV. Patella-tibia I length 1.7–2.0 ($\bar{x} = 1.92$).

Material examined.—**MARQUESAS ISLANDS:** *Nuku Hiva*, Taiohae, grassy knoll, elev. 200 m, 2♂2♀20imm, 21 January 1987 (JWB & ERB). Taiohae, Governor's residence, shaking dead shrubbery, 1♂9imm, 21 January 1987 (JWB & ERB). Taiohae, trash pile in culvert, 1♂2♀3imm, 21 January 1987 (JWB & ERB). Taiohae, sweeping bushes, 1♂1♀5imm, 22 January 1987 (JWB & ERB). Taiohae, tree shaking, open field, 5♂16imm, 22 January 1987 (JWB & ERB). Taiohae, hibiscus litter, 1♂3imm, 22 January 1987 (JWB & ERB). Taiohae, sweeping, elev. 800 m, 5imm, 23 January 1987 (JWB & ERB). Taiohae, on buildings, 4imm, 25 January 1987 (JWB & ERB). Taipivai valley, tree shaking, 1♀5imm, 27 January 1987 (JWB &

ERB). Toovii, tree shaking, 600 m, 1♂2♀13imm, 27 January 1987 (JWB & ERB). Toovii, tree shaking, 600 m, 1♀6imm, 28 January 1987 (JWB & ERB). Cove west of Taiohae, litter near sea, 1♀, 30 January 1987 (JWB & ERB). Airport, almost desert conditions, sweeping low vegetation, 2♂4♀24imm, 14 February 1987 (JWB & ERB). *Hiva Oa*, Hanamenu, tree shaking, 1♂3♀23imm, 4 February 1987 (JWB & ERB). Hanamenu, top of E ridge, 1♂3♀8imm, 5 February 1987 (JWB & ERB). Hanamenu, in grass clump, 1imm, 6 February 1987 (JWB & ERB). Atuona, shaking low vegetation, 2♂10imm, 8 February 1987 (JWB & ERB). Atuona, roadside vegetation, 1imm, 9 February 1987 (JWB & ERB). Atuona, coconut/philodendron, sweeping and shaking, 1♂1imm, 10 February 1987 (JWB & ERB). Atuona, shaking roadside vegetation, 1imm, 10 February 1987 (JWB & ERB). Atuona, roadside sweeping, 5imm, 11 February 1987 (JWB & ERB). *Fatu Hiva*, Hanavave, coconut forest, sweeping & shaking, 1♀, 13 February 1987 (JWB & ERB). *Ua Pou Is.*, Hakahatau Airport, 100 m, 2♀, 12 July 1988 (S.L. Montgomery) (BPBM). Nuku Hiva, Terre Deserte, Ha'atuatua V, 1♂, 2 July 1988 (S.L. Montgomery) (BPBM). **TUAMOTU ISLANDS:** *Rangiroa Is.*, Avatoru, swept at light, 1♀, 28 August 1988 (S.L. Montgomery) (BPBM). **SOCIETY ISL.:** *Huahine*, Fare, 0–100 m, 1♂, March 1979 (N.L.H. Krauss) (BPBM). *Huahine*, Fare, 0–100 m, 1♂, March 1972 (N.L.H. Krauss) (BPBM). *Moorea*, Paopao, sweeping grass, 3 imm, 11 January 1987 (JWB & ERB). *Tahiti*, Tautira, 2♀, January 1961 (N.L.H. Krauss) (BPBM). *Raiatea*, Uturoa, 1♀, February 1961 (N.L.H. Krauss) (BPBM). **NEW CALEDONIA:** *Col de la Pirogue*, 1♀, 14 February 1963 (Yoshimoto) (BPBM). **COOK ISLANDS:** *Rarotonga*, Arorangi reservoir, roadside sweeping, elev. 50 m, 2imm, 1 March 1987 (JWB & ERB). Arorangi village, grass litter, 1imm, 4 March 1987 (JWB & ERB). Arorangi village, tree shaking, 1imm, 11 March 1987 (JWB & ERB). Arorangi village, tree shaking, elev. 30 m, 1♂2♀4imm, 14 March 1987 (JWB, ERB & JAB). Arorangi village, tree shaking, near Raemaru, elev. 250 m, 1imm, 14 March 1987 (JWB, ERB & JAB). Turangi village, tree shaking, elev. 100 m, 1♀1imm, 1 April 1987 (JWB, ERB & JAB). Inland from Muri Beach, tree shaking, elev. 20 m, 1imm, 4 March 1987 (JWB & ERB). Rutaki Road, tree shaking, 1♂1imm, 4 March 1987 (JWB & ERB). Tuoro hill, elev. 200 m, tree shaking, 4♂3imm, 10 March 1987 (JWB & ERB). Matavera, 0–100 m, 1♀, March 1976 (N.L.H. Krauss) (BPBM). Avarua, 0–100 m, 1♂3♀3imm, February 1979 (N.L.H. Krauss) (BPBM). Avarua, 0–100 m, 1♀, December 1977 (N.L.H. Krauss) (BPBM). Avarua valley, 0–150 m, 2♀, November 1977 (N.L.H. Krauss) (BPBM).

Distribution.—South America, Australia, New Caledonia and the Cook, Galapagos, Mangareva, Marquesas, Society and Tuamotu Islands.

Genus *Ligurra* Simon 1903

Diagnosis.—Small fissidentate salticids with sternum narrow anteriorly and first coxae close together. General appearance short, broad and short-legged, similar to *Rhene* Thorell 1869 and *Stertinus* Simon 1890. Differs from *Rhene* by having simpler genitalia in both sexes, from *Stertinus* by having third eye row not at posterior edge of flat part of carapace, by lacking lateral spines on metatarsus I, and retrolateral cheliceral tooth bicuspid rather than tricuspid. The latter character may be unreliable. Only one other species is placed in the genus at present (see diagnosis of the new species below).

Descriptive notes.—Fissidentate, with bicuspid tooth. Male chelicerae concave with a ridge edging the concavity; fang with two anterior spurs which close to either side of a distal flap on the paturon; female chelicerae normal, no spurs, flap or concavity.

Ligurra opelli new species

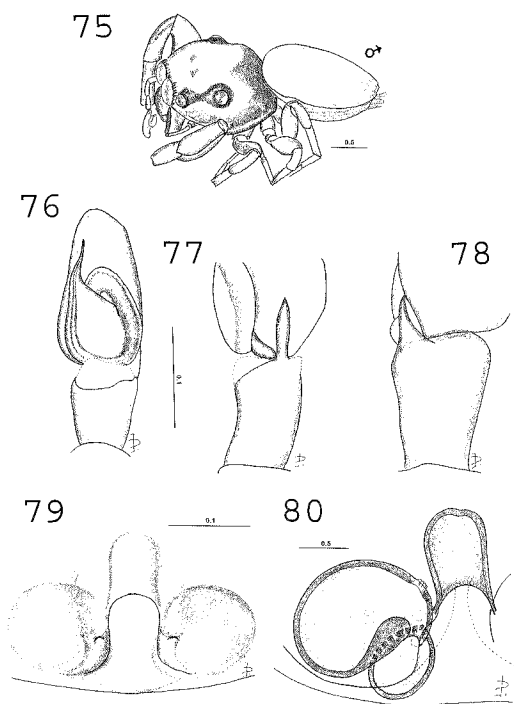
Figs. 75–80

Holotype.—Male, mixed tropical forest, woods below SDA school, Airai, Babelthuap, Palau, Caroline Islands, 11 March 1973 (Berry, Berry & Beatty) (BPBM).

Etymology.—This species is named for Dr. Brent Opell, an arachnologist at Virginia Polytechnic Institute and State University at Blacksburg, Virginia.

Diagnosis.—Male with embolus tapering, but almost straight, that of *L. latidens* (Dolleschall 1859) is distinctly curved. Tibial apophysis of palp slender and straight. Female with epigynal openings located near a narrow median hood. The female of *L. latidens* has no hood and the openings are at the posterior edge of the epigynum (Figs. 75–80).

Description.—*Male:* ($n = 5$). Total length 2.9–3.3 ($\bar{x} = 3.13$), length of carapace 1.3–1.7 ($\bar{x} = 1.52$), maximum carapace width 1.3–1.5 ($\bar{x} = 1.46$), eye field length 0.9–1.1 ($\bar{x} = 0.96$), eye row I width 1.1–1.3 ($\bar{x} = 1.23$). Stocky build, flattened, with abdomen overhanging sloping part of the thorax. Cephalothorax yellowish-brown, covered with sparse, whitish setae, ventral edge dark brown and



Figures 75–80.—*Ligurra opelli* new species from Caroline Islands. 75, General appearance of male; 76, Left palp ventrally; 77, Palp laterally; 78, Tibial apophysis dorsally; 79, Epigynum; 80, Internal structure of epigynum showing single spermatheca and ducts.

bare, with a narrow line of short white setae above. Lateral eyes narrowly surrounded with black pigmentation, eyes II in the middle between ALE and III. Abdomen yellowish-brown with indistinct pattern of lighter spots; the entire dorsum covered by scutum. Face low and broad, eyes I in a straight line, ALE separated from AME by about half their diameter, which diameter is half that of AME, clypeus reduced, light brown with a thin line of white setae under ALE only. Setae encircling dorsal rims of eyes I are white in male, contrasting with darker clypeus. Chelicerae short and broad, anteriorly concave, with retrolateral edge sclerotized; cheliceral fang with two anterior triangular protuberances and corresponding flap on prolateral edge of chelicera near fang; these are developed to different degrees in males of the same sample—from prominent to nearly invisible. One retrolateral cheliceral tooth, three prolateral cheliceral teeth. Ventral aspect: light brown to yellow, with abdomen lighter. *Legs*: Leg formula

1-4-2-3; legs I distinctly longer than others. Legs short, the first very robust, II–IV less so. Patella-tibia I length 1.1–1.7 (\bar{x} = 1.44) with patella-tibia III shorter than IV. *Palp*: See diagnosis and Figs. 76–78.

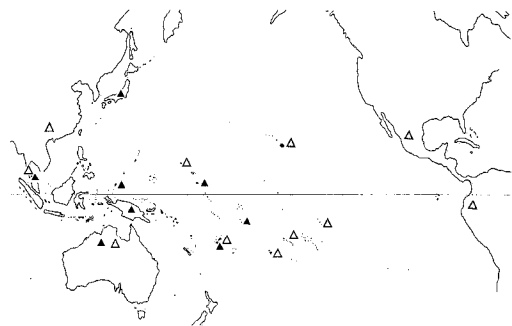
Female: (n = 5). Total length 3.6–4.7 (\bar{x} = 3.92), length of carapace 1.6–1.8 (\bar{x} = 1.69), maximum carapace width 1.5–1.7 (\bar{x} = 1.58), eye field length 0.9–1.1 (\bar{x} = 1.06), eye row I width 1.3–1.4 (\bar{x} = 1.35). Setae encircling dorsal rims of eyes I are colorless in female; also, entire clypeus covered with long white setae. Abdomen, except for the margins, covered by scutum. One bicuspid retrolateral cheliceral tooth, three prolateral cheliceral teeth. *Legs*: Leg formula $1\cong 4-2-3$; patella-tibia III shorter than IV. Patella-tibia I length 1.1–1.5 (\bar{x} = 1.26). *Epigynum*: See diagnosis and Figs. 79, 80.

Material examined.—**CAROLINE ISLANDS:** *Palau Islands*, Kayangel Atoll, coconut/*Barringtonia*, tree shaking, 2♂2♀, 22 May 1973 (JWB). Kayangel Atoll, in cycad tree, 1♂, 22 May 1973 (JWB). Koror, scrub forest in vacant lot, tree shaking, 5♂3♀10imm, 13 March 1973 (JWB & JAB). Koror, scrub forest in vacant lot, tree shaking, 3♂2♀19imm, 13 February 1973 (JWB). Peleliu, tree shaking, *Casuarina* forest, 1♂7imm, 21 March 1973 (JWB & ERB). Pulo Anna, tree shaking, coconut/shrub, 1♂, 7 April 1973 (JWB & ERB). Sonzorol, mixed tropical forest, 1♀7imm, 6 April 1973 (JWB & ERB). Arakabesan, mixed tropical forest, elev. 50–75 ft., tree shaking, 1♂4imm, 16 February 1973 (JWB & ERB). Babelthup, Airai, woods below SDA school, mixed tropical forest, tree shaking, 1♂, 11 March 1973 (JAB & JWB). Malakal, dry tropical forest, tree shaking, 1♀, 14 March 1973 (JWB, ERB & JAB). *Ponape*, Kolonia, on building, 1♀, 28 March 1980 (JAB).

Distribution.—Known from the Caroline Islands: Palau District and Ponape.

Genus *Plexippus* C.L. Koch 1846

Diagnosis.—A medium-to-large cosmopolitan unidentate genus belonging to Simon's Plexippeae. Prószyński (1990) lists 56 species in the genus. Differs from other genera of that group by having two whorls of spines (rather than three) on metatarsus III, by the broad angular bulb of the male palp and the epigynal structure, which lacks the large “windows” and narrow septum of *Palpelius* Simon 1903 (figs. 109, 112). One retrolateral cheliceral tooth, two prolateral cheliceral teeth.



Map 6.—Overlapping distribution of two species of *Plexippus* in the Pacific. *Plexippus paykullii* (Δ), a widely distributed pantropical species, and *Plexippus petersii* (▲), which is also known from India and Mozambique.

Plexippus paykullii (Audouin 1825)

Map 6

Attus paykullii Aud. 1825

Plexippus paykulli (Aud.): Paesi 1883

Apamamia bocki Roewer 1944 NEW SYNONYMY

Discussion.—This widespread cosmopolitan species is synanthropic and is considered as a “tramp” species. It has been illustrated many times, recently by Prószyński (1987) and Žabka (1990). Bonnet (1958) lists numerous other synonyms.

Measurements.—*Male*: ($n = 5$). Total length 7.5–8.9 ($\bar{x} = 8.46$), length of carapace 3.5–4.5 ($\bar{x} = 4.09$), maximum carapace width 2.9–3.2 ($\bar{x} = 3.08$), eye field length 1.7–1.9 ($\bar{x} = 1.82$), eye row I width 2.2–2.5 ($\bar{x} = 2.35$). *Legs*: Leg formula 4-1-3-2; patella-tibia III shorter than IV. Patella-tibia I length 3.6–4.3 ($\bar{x} = 4.00$).

Female: ($n = 5$). Total length 8.1–10.1 ($\bar{x} = 9.14$), length of carapace 3.4–4.3 ($\bar{x} = 3.84$), maximum carapace width 2.5–3.1 ($\bar{x} = 2.76$), eye field length 1.6–1.8 ($\bar{x} = 1.75$), eye row I width 2.1–2.5 ($\bar{x} = 2.23$). *Legs*: Leg formula 4-3-1-2; patella-tibia III equal to IV. Patella-tibia I length 2.5–3.1 ($\bar{x} = 2.76$).

Material examined.—**MARSHALL ISLANDS**: *Eniwetok*, 5♂20♀30imm (JWB & JAB). **HAWAII**: *Midway Is.*, 1♂2♀5imm (J. Richardson). **MALAYSIA**: *Penang*, 1♂ (JAB). **MARQUESAS ISLANDS**: *Nuku Hiva*, 4♂7♀12imm (JWB & ERB). *Hiva Oa*, 1imm (JWB & ERB). **FIJI**: *Viti Levu*, 2♂1♀ (JAB, JWB & ERB). **SOCIETY ISLANDS**: *Moorea*, 1♂ (JWB & ERB). **TUAMOTU ISLANDS**: *Manihi*, 5♀5imm (ERB).

Distribution.—Pantropical species, widely

distributed; cosmopolitan in warm climates, overlaps distribution of *Plexippus petersi* on some islands. N & S America (Mexico, SE USA: to Texas); Mediterranean (including Israel), S Europe, Africa, S & E Asia, Australia, Oceania.

Plexippus petersii (Karsch 1878)

Map 6

Euophrys petersii Karsch 1878

Plexippus petersi (Karsch): Simon 1903

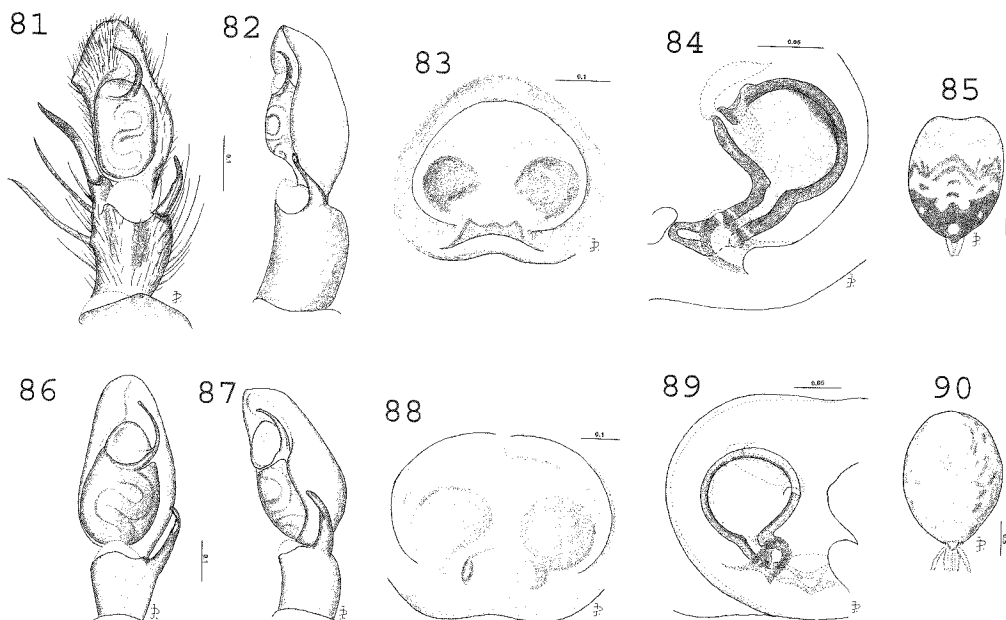
Discussion.—This species, less common than *Plexippus paykullii*, overlaps the distribution of that species in Fiji and in Majuro (Marshall Islands). However, *P. paykullii*, although often taken on buildings, is frequently found associated with forests or other vegetation, while *P. petersii* is more strictly limited to buildings. Almost all of the specimens reported here were found associated with buildings (except for those from uninhabited Helen Reef). Illustrated by Žabka (1985) and Prószyński (1987).

Measurements.—*Male*: ($n = 5$). Total length 5.6–7.3 ($\bar{x} = 6.34$), length of carapace 2.9–3.5 ($\bar{x} = 3.14$), maximum carapace width 2.0–2.7 ($\bar{x} = 2.40$), eye field length 1.3–1.6 ($\bar{x} = 1.44$), eye row I width 1.8–2.1 ($\bar{x} = 1.98$). *Legs*: Leg formula 4-1-3-2; patella-tibia III shorter than IV. Patella-tibia I length 2.3–3.2 ($\bar{x} = 2.70$).

Female: ($n = 5$). Total length 6.5–9.9 ($\bar{x} = 7.90$), length of carapace 3.0–3.8 ($\bar{x} = 3.38$), maximum carapace width 2.2–2.7 ($\bar{x} = 2.44$), eye field length 1.3–1.7 ($\bar{x} = 1.52$), eye row I width 2.0–2.3 ($\bar{x} = 2.14$). *Legs*: Leg formula 4-3-1-2; patella-tibia III shorter than IV. Patella-tibia I length 2.0–2.6 ($\bar{x} = 2.36$).

Material examined.—**MARSHALL ISLANDS**: *Majuro*, 1♂1♀1imm (JWB & JAB). **CAROLINE ISLANDS**: *Palau*, Angaur, 1♀ (JWB & ERB); *Helen Reef*, 1♂1♀1imm (JWB & ERB); *Koror*, 8♂10♀1imm (JWB, ERB & JAB). *Peleliu*, 1♀1imm (JWB & ERB); *Malakal*, 2♀ (JWB, ERB & JAB). *Yap*, 1♂3♀1imm (JWB, ERB & JAB). *Truk*, 1♀ (JWB & JAB). *Ponape*, 2♀1imm (JWB & JAB). **FIJI**: *Viti Levu*, 1♂2♀ (JWB, ERB & JAB). **AMERICAN SAMOA**: *Tutuila*, 1♂1♀ (JAB). **AUSTRALIA**: *Darwin*, 1♀ (JAB).

Distribution.—Mozambique, India, Sri Lanka, Singapore, Japan, China, New Guinea, Solomon Islands, Caroline Islands, Marshall Islands, Fiji, Samoa, Australia.



Figures 81–90.—The genus *Thorelliola*. 81–85, *Thorelliola ensifera* from the Marquesas Islands. 81, Left palp ventrally; 82, Palp laterally; 83, Epigynum; 84, Internal structure of epigynum—single spermatheca and ducts. 85, Abdominal pattern of female. 86–90, *Thorelliola dumicola* new species, from Ponape. 86, Left palp ventrally; 87, Palp laterally; 88, Epigynum; 89, Internal structure of epigynum—single spermatheca and ducts. 90, Abdominal pattern of female.

Genus *Thorelliola* Strand 1942

(*Thorellia* Keyserling 1882 preoccupied)

Diagnosis.—A fissidentate salticid with one 3–6 cusped retromarginal cheliceral tooth, two prolateral cheliceral teeth, one much smaller than the other. Metatarsi I with lateral spines, coxae one widely separated, anterior eye row strongly recurved.

Thorelliola ensifera (Thorell 1877)

Figs. 81–85

Plexippus ensifer Thorell 1877

Thorellia ensifera (Thorell): Keyserling 1882.

Discussion.—There is some evidence (Chelstowska pers. comm.) that the widespread Pacific salticid that has always gone by this name is not the same species as *Plexippus ensifer*, which was originally described from Celebes. We have taken it in a variety of habitats: in litter, on tree trunks, foliage and buildings, in forested and non-forested areas, and at elevations from 0–800 m.

Measurements.—*Male*: ($n = 5$). Total length 4.4–4.8 ($\bar{x} = 4.68$), length of carapace 2.1–2.3 ($\bar{x} = 2.19$), maximum carapace width 1.6–1.8 ($\bar{x} = 1.73$), eye field length 1.1–1.3

($\bar{x} = 1.21$), eye row I width 1.5–1.7 ($\bar{x} = 1.67$). *Legs*: Leg formula 1-4-2-3; patella-tibia III equal to IV. Patella-tibia I length 1.9–2.2 ($\bar{x} = 2.02$).

Female: ($n = 5$). Total length 3.7–4.3 ($\bar{x} = 3.92$), length of carapace 1.7–1.8 ($\bar{x} = 1.74$), maximum carapace width 1.3–1.9 ($\bar{x} = 1.45$), eye field length 0.9–1.0 ($\bar{x} = 0.97$), eye row I width 1.3–1.9 ($\bar{x} = 1.44$). *Legs*: Leg formula 4-1-3-2; patella-tibia III equal to IV. Patella-tibia I length 1.1–1.3 ($\bar{x} = 1.16$).

Material examined.—(all from our collection)

MARIANA ISLANDS: Guam, 6♂3♀, 7imm.

CAROLINE ISLANDS: Palau, 34♂31♀, 75imm;

Yap, 21♂39♀, 59imm; Ulithi, 2♂3♀, 1imm; Pon-

ape, 1♂4♀, 6imm. **MARSHALL ISLANDS:** Eni-

wetok, 16♂15♀, 31imm; Kwajalein, 15♂5♀,

12imm; Majuro, 6♂17♀, 28imm. **FIJI:** Viti Levu,

28♂27♀, 56imm. **AMERICAN SAMOA:** Tutuila,

6♂5♀, 17imm. **COOK ISLANDS:** Aitutaki,

5♂8♀, 13imm. *Rarotonga*, 38♂36♀, 97imm. **SO-**

CIETY ISLANDS: Moorea, 21♂15♀, 85imm.

MARQUESAS ISLANDS: Fatu Hiva, 8♂9♀,

19imm; Hiva Oa, 27♂38♀, 65imm; Nuku Hiva,

22♂17♀, 41imm.

Distribution.—Malaysia across the Pacific to the Marquesas Islands.

Thorelliola dumicola new species

Figs. 86–90

Holotype.—Male from Ponape (Caroline Islands), SW of Sekere Sch., shaken from bushes overhanging roadbank, 10 June 1973. Coll. J.A. Beatty & J.W. Berry.

Etymology.—The specific epithet, *dumicola*, means dwelling in thickets, because of the habitat in which the specimens were collected.

Discussion.—The placement of this species in the genus *Thorelliola* can be questioned because of its lack of the two strong recurved frontal spines characteristic of *T. ensifera*. However, the color pattern, while paler and less distinct in *dumicola*, is almost identical with that of light-colored and juvenile specimens of *T. ensifera*. Body shape and appendage proportions are similar in both species, and the genitalia are of the same form. The number and arrangement of spines on the appendages show only slight differences between the two species, and both have the unusual 3–6 cusped tooth on the cheliceral margin.

Diagnosis.—Differs from *T. ensifera* by its paler abdominal pattern, and in males by having only a single slender frontal bristle rather than two strong ones; recognizable by palp and epigynum (Figs. 86–89).

Description.—*Male*: ($n = 1$). Total length 2.9, length of carapace 1.5, maximum carapace width 1.2, eye field length 0.8, eye row I width 1.2. Cephalothorax greyish-brown with somewhat lighter eye field and anterior, flat thorax; eye field rather bare, with small indistinct setae. Abdomen very different from the usual coloration of *T. ensifera*, resembling rather *Euophrys*, light whitish-yellow with indistinct pattern of yellowish-grey pigmented median and marginal spots, making indistinct chevrons in posterior half; dark bristles and setae more prominent. Frontal aspect: face brownish, eyes I surrounded with whitish setae, bristles on clypeus small and inconspicuous; chelicerae brownish; pedipalps whitish with yellow cymbium. *Legs*: Leg formula 4-3-1=2; patella-tibia III equal to IV. Patella-tibia I length 0.9. Legs I light yellow. *Palp*: Lacks the enlarged spines and somewhat angular cymbium in *T. ensifera*, but in form of palpal bulb and tibial apophysis the two are extremely similar (Figs. 86, 87).

Female: ($n = 2$). Total length 3.1, 4.0;

length of carapace 1.5, 1.9; maximum carapace width 1.3, 2.0; eye field length 1.0, 1.1; eye row I width 1.3, 2.0. Cephalothorax yellow with brown shade, with a pair of brown spots on posterior slope of thorax. Small, colorless setae poorly visible on light background, however sparse, short dark bristles more distinct because of color contrast. Abdomen coloration like male (Fig. 90). Frontal aspect: face light yellow, eyes I surrounded with light yellow setae dorsally, ventrally whitish; chelicerae bulging basally, greyish-yellow, apically yellow. *Legs*: Relative leg length 4-3-1-2; patella-tibia III equal to IV. Patella-tibia I length 1.1, 1.4. Pedipalps and legs I yellowish-white with sparse dark setae. *Epigynum*: Of same form as that of *T. ensifera*, but with spermathecae smaller and ducts shorter (Figs. 83, 84; 88, 89).

Material examined.—CAROLINE ISLANDS: Ponape, SW of Sekere Sch., shaken from bushes along roadbank, 10 June 1973, 1♂ (the holotype) and 1♀1imm (JAB & JWB) (BPBM). Mt. top, shaking, 6 June 1973, 1♀ (JAB & JWB).

Distribution.—Known only from Ponape in the Caroline Islands.

Genus *Trite* Simon 1885

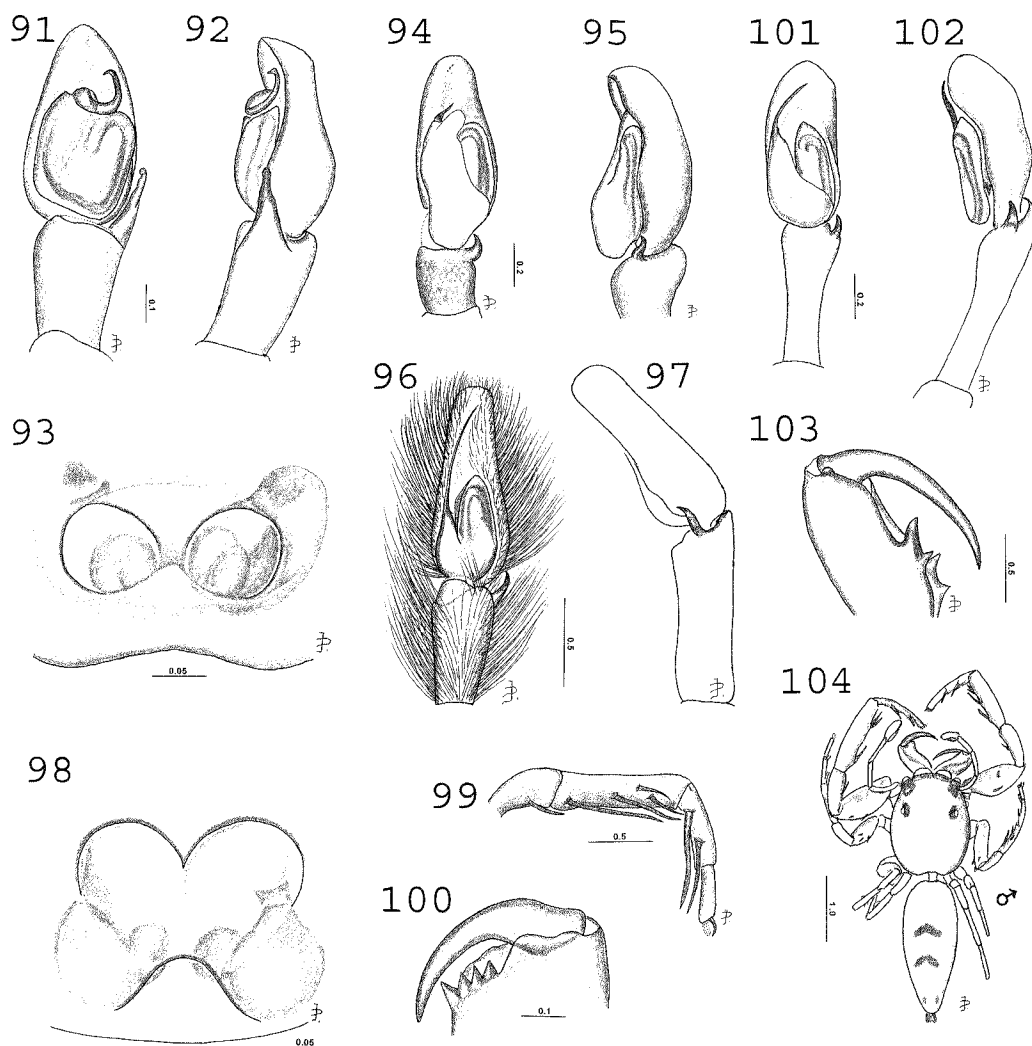
Discussion.—Related species that have been redescribed by Žabka (1988) are *Trite auricoma* (Urquhart 1885), *T. pennata* Simon 1885, and *T. planiceps* Simon 1889. Seventeen species are currently placed in the genus (Prószyński 1990), all from Australia, New Zealand and south Pacific islands. Four of these, *T. rapaensis* Berland 1942 (Figs. 91–93), *T. ignipilosa* Berland 1924 (Figs. 94, 95), *T. lineata* Simon 1885 (Figs. 98–100), and *T. gracilipalpis* Berland 1929 (Figs. 101–104) are illustrated here for comparison with the new species and to make available more detailed illustrations than have been available before.

Diagnosis.—Medium-to-large fissident or plurident salticids with fourth leg longer than third, cephalic portion of the cephalothorax flat, second row of eyes closer to anterior than posterior row, anterior eyes nearly contiguous and ocular area wider behind than in front.

Trite ponapensis new species

Figs. 96, 97; Map 7

Holotype.—Male from Ponape, top of mountain, tree shaking, 6 June 1973 (J.W. Berry & J.A. Beatty) (BPBM).



Figures 91–104.—The genus *Trite*. 91–93, *Trite rapaensis*; 91, Left palp ventrally; 92, Palp laterally; 93, Epigynum. 94, 95, *Trite ignipilosa* from New Caledonia; 94, Left palp ventrally; 95, Palp laterally. 96, 97, *Trite ponapensis* new species from Ponape; 96, Left palp ventrally; 97, Palp laterally. 98–100, *Trite lineata* from Nouméa. 98, Epigynum; 99, Tibia I, female; 100, Ventral view of female chelicera; 101–104, *Trite gracilipalpis*. 101, Left palp ventrally; 102, Palp laterally; 103, Ventral view of chelicera; 104, Dorsal appearance of male (TYPE) from Loyalty Island.

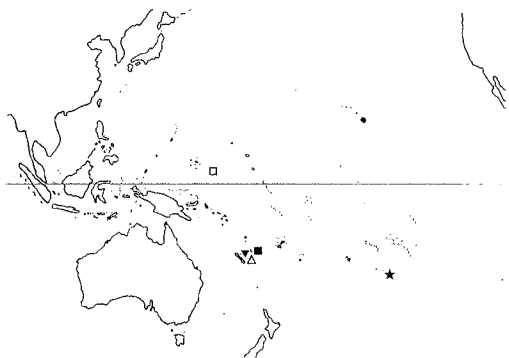
Etymology.—The species is named for the island of Ponape in the Caroline Islands, the only known location.

Discussion.—This species is placed in *Trite* with considerable doubt. It is unidentate rather than fissidentate and the middle eye row is closer to the posterior than the anterior eyes. The general appearance is similar to *Bavia*, but both the cheliceral teeth and genitalia are quite different from that genus. In some respects it resembles *Thiania* C.L. Koch 1846

and the *Marpissa* C.L. Koch 1846 group of genera. With only a single specimen available we are unable to arrive at any firm conclusion.

Diagnosis.—Externally resembles *Bavia* Simon 1877 from which it differs by the structure of the palp, the straight dorsal edge of the palpal tibia and the cheliceral dentition. Distinguishable from other *Trite* by the long thin, nearly straight embolus which originates near the base of the bulb (Figs. 96, 97).

Description.—*Male*: ($n = 1$). Total length



Map 7.—Distribution of five species of *Trite* in the Pacific. *Trite ponapensis* new species (□), *Trite gracilipalpis* (■), *Trite ignipilosa* (△), *Trite lineata* (▲), and *Trite rapaensis* (★).

9.5, length of carapace 4.1, maximum carapace width 3.0, eye field length 2.1, eye row I width 2.5. Cephalothorax broad but more elongate and less swollen than in *Bavia*; light brown, dorsum of thorax with broad lighter zone with minute whitish setae, fovea prominent. Eye field light greyish-brown, finely rough, slightly shiny, with a line of whitish setae along lateral eyes and above eyes I. Sides with sparse, inconspicuous brownish setae, longer and denser under lateral eyes along a crest reminiscent of *Ascylltus*. Abdomen long and thin, broadest anteriorly, gradually narrowing and pointed posteriorly, with long spinnerets. Median area of dorsum whitish, margins brown, sides with dense thin brown lines on white background; spinnerets light yellow. Frontal aspect—face light reddish-brown, rims of eyes I black surrounded with inconspicuous white-tipped setae. No contrasting spots. A line of long brown setae below AME overhanging cheliceral bases, chelicerae reddish-brown with papillate surface. ALE almost touching AME, diameter of AME = 2 diameters of ALE. One retrolateral cheliceral tooth, two prolateral cheliceral teeth. Ventral aspect: Endites elongate, rectangular, rounded apically, narrowing basally, without any depression or separate expansion along external edge. Chelicerae, endites, and labium fawn, anterior coxae light brown, coxae II-IV whitish-yellow; sternum yellow, darker marginally; abdomen ventrally greyish-white with light brown epigastric fold, light grey rectangular area along majority of length of abdomen, no dark ring around spinnerets. Pedi-

palps with dense brush of long grey setae along edges of patella, tibia and cymbium, no such characters in any *Bavia*. Pedipalps long and thin, yellowish-brown, extremities of segments slightly lighter, but no contrasting spots. Dorsal anterior edge of pedipalpal tibia triangular. *Legs*: Leg formula 1-4-2-3, patella-tibia III shorter than IV. Patella-tibia I length 4.2. Legs I light brown, in some areas yellowish; femur I with prolateral surfaces bald and shiny, brown, with a crest of blackish setae along dorsal edge. Inconspicuous spot of whitish setae prolaterally on patella. Tibia I has one additional lateral spine between first and second ventral spines, slightly more dorsally, with all ventral prolateral spines concentrated in the apical half of the segment. *Palp*: See diagnosis and Figs. 96, 97.

Female: Female is unknown.

Material examined.—Only the holotype.

Distribution.—Known only from Ponape in the Caroline Islands.

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